RESISTANCE OF VARIETIES OF ROUGH RICE (PADDY) TO THE *SITOPHILUS ZEAMAIS* MOTSCHULSKY (COLEOPTERA-CUCURLIONIDAE)

by

CARLOS JORGE ROSSETTO

Eng. Agr., Escola Superior de Agricultura "Luiz de Queiroz," 1961

A MASTER'S THESIS

submitted in partial fulfillment of the

requirements for the degree

MASTER OF SCIENCE

Department of Entomology

KANSAS STATE UNIVERSITY
Manhattan, Kansas

1966

Approved by:

Reginald H. Painter
Major Professor

TABLE OF CONTENTS

INTRODUCTION

Due to the increase of the world population all research work aimed at increasing food production or preserving the food produced is of upmost importance. Rice is the major food for over a billion human beings (Crist, 1961; Peterson, 1963). Rice is mostly produced in the tropics where the high humidity favors the insect attack to the stored grain. Much damage is done to stored rice after harvest. Rough rice[1] or paddy, parboiled rice,[2] brown rice,[3] and milled rice[4] are all damaged. So far the control of insects in rough rice has been confined to chemical methods. Recommendations for chemical control of insects in rough rice have been broadly made (Stracener, 1934, 1937; Balzer, 1942; Anonymous, 1957; Hinckley, 1963; Anonymous, 1963; Rouse et al., 1958). Many times the fumigation of stored rough rice cannot be easily accomplished because of warehouses or flat storages of loose construction. As Stracener (1934) pointed out, the penetration of fumigants into rough rice is not as easy as into other grains and many times the fumigation although well carried out is not effective (Rouse et al., 1958). Some fumigants, like methyl bromide, leave a residue in rice (Anonymous, 1963). In view of these facts the study of natural resistance of rice for storage to insect attack is highly desirable. If resistant varieties of rough rice were bred and cultivated it would help to reduce the initial

---

[1] Kernels with lemma and palea.

[2] Soaked and steamed rice.

[3] Kernels without lemma and palea but with germ.

[4] Kernels without lemma, palea and germ.

infestation and thus favorably affect the later storage of any type of rice without the hulls.

In this work one thousand seven hundred varieties of rough rice were tested for resistance to the rice weevil Sitophilus zeamais Motschulsky and possibilities for using natural resistance to control insects in rough rice are discussed.

REVIEW OF LITERATURE

It must be noticed that due to the synonymy of Sitophilus oryzae (L.) and Sitophilus zeamais Motschulsky until 1959, when Floyd and Newsom separated them into two different species, it is often impossible to know to which of these species the information given in the literature refers. Even in some recently published scientific papers in which the characters used in the identification of these species are not given, the information presented is of doubtful value as far as the species to which the information given applies.

Pests of Rough Rice

Tucker (1920) observed that rough rice was infested most by Rhyzopertha dominica (F.), second by Lathetieus oryzae Waterh. and third by Sitotroga cerealella (Oliv.). Stracener (1934) observed that the weight loss of rough rice in Louisiana due to stored grain pests was 16% and 14% in the 1931 and 1932 crops respectively. The main pests found were Rhyzopertha dominica (F.), Sitotroga cerealella (Oliv.) and Sitophilus oryzae in order of damage done. These three species were responsible for more than 95% of the damage. Stracener (1937) pointed that a survey conducted by the Louisiana Agricultural

Experiment Station in 1932, 1933, 1934 showed that rough rice kept in storage through August had an average infestation of 16% for these years. Douglas (1941) ranked Sitotroga cerealella (Oliv.) as the most injurious insect to stored rough rice in the U.S.A.; Sitophilus oryzae (L.) and Rhyzopertha dominica (F.) were ranked as the second and third most injurious respectively. He stated that elimination or reduction in abundance of these first "two insects in stored rice would be of marked benefit to farmers, warehousemen and millers." He also noticed that Sitotroga cerealella (Oliv.) emerged from 117 (93.6%) out of 125 samples of rough rice collected in the field at Crowley, Louisiana, during four years (1934-1937) and Sitophilus oryzae (L.) emerged from 5.6% of these samples. Balzer (1942) considered Sitotroga cerealella (Oliv.), Rhyzopertha dominica (F.) and Sitophilus oryzae (L.) the most destructive pests of rough rice. Rouse et al. (1958) surveyed 54 and 56 farms in 1955-56 and 1956-57 crop seasons respectively, collected 1,658 samples, and observed that in Arkansas the primary pests most commonly found in rough rice are Sitotroga cerealella (Oliv.) and Rhyzopertha dominica (F.). Rice weevils were found only in five out of the 1,658 samples taken. H. R. Gundurao (personnel information) considers Sitotroga cerealella (Oliv.) the major pest of rough rice in India. Breese (1960 and 1961) considered the problem of pests in stored rough rice greater in the American tropics than in Southeast Asia, India and other far eastern countries. Breese (1961) considered insect infestations in stored rough rice a major problem of rice in British Guiana. Breese (1960) considered Sitophilus oryzae (L.) and Rhyzopertha dominica (F.) the main pests of rough rice in British Guiana and Trinidad and it appears that losses caused by Sitotroga cerealella (Oliv.) are small compared to the losses caused by these two beetles. Hinckley (1963)

observed that in the Fiji Island, rice weevils Sitophilus spp. are the most important pests of rough rice with both Sitophilus zeamais Motschulsky and Sitophilus oryzae (L.) present. Morrison (1964a) found the rice weevils to be the two most prevalent stored grain pests in Texas and Sitophilus zeamais was most frequently found in sorghum and corn. It is important to notice that rice was not studied in this survey and only two samples that had been fumigated were examined. Freeman (1964) reported the results of inspections made during 1953 through 1959 in cargoes of rice unloaded in British ports and Sitotroga cerealella (Oliv.) and Rhyzopertha dominica (F.) were not among the 13 insects most commonly found. Kiritani (1964) reported that Sitophilus zeamais Motschulsky is common in rice imported into Japan regardless of the country of origin. He also reported that in Japan rice is usually stored husked and Sitophilus zeamais Motschulsky and S. oryzae are the most serious pests, the former being the most common. Plodia interpunctella (Hbn.) was the most injurious among the moths, damaging either polished or rough rice and Sitotroga cerealella (Oliv.) was the least important, in Japan.

Biology of Rice Weevil

Information on the biology of rice weevils are given by Hinds (1911), Cotton (1920), Richards (1944), Reddy (1950a), Howe (1952), Nishigaki (1958), Floyd and Newsom (1959), Soderstrom (1962b) and Soderstrom and Wilbur (1965). Morrison (1964c) gives an annotated bibliography of one hundred and five references relevant to the ecology of the rice weevil complex.

Resistance of Rough Rice

Soderstrom (1962a) reviewed some studies on resistance of stored grain

to insects. Stermer (1959) observed that Sitophilus oryzae is most attracted to a waveband from 334 to 546 mu, for an intensity of 9 micro-microwatts of radiant energy.

Influence of Grain Size. Roa (1953) (cited by Morrison, 1964c) observed that "grain size and grain density are important factors in the attractiveness of a particular variety of rice." Other authors working with other grains have also observed influence of the size of the grain upon infestation. Ewer (1945) observed that Sitophilus granarius preferred to lay eggs in larger grains of wheat. Reddy (1950b) observed that the female rice weevils preferred to oviposit on sound kernels when offered a choice between sound kernels and halved kernels of wheat. However, when there was no choice, about the same number of eggs were laid on sound and halved kernels. Differences in surface available and weight of grain were not the reason for the difference in oviposition found. Larger size of the grain was suggested as an explanation for the preference of sound kernels. Morrison (1964b) concluded that it is possible for Sitophilus zeamais Motschulsky to maintain a low level of infestation in coarsely and finely ground particles of sorghum, but the highest infestation was obtained with whole sorghum kernels. Russell (1962) noticed that when sorghum varieties were mixed oviposition preference was greatest for the largest seeds, least for the smallest ones. Gundurao and Majumder (1964) studied the relation of particle size in the degree of infestation of pulses by Callosobruchus chinensis (L.) and concluded that the "depth of infestation increased with the increase in the size of the grain and resulting intergranular space."

Food and Body Weight. Differences in body weight of Sitophilus spp. when different grains were used as food has been reported by Kinoshita and

Ishikura (1940), Richards (1944), Birch (1946), Reddy and Muchelbacher (1953), Soderstrom and Wilbur (1965). Kinoshita and Ishikura (1940) noticed a decrease in the size of S. oryzae with the decrease of moisture content of the rice and the decrease was more at 30°C than at 25°C.

Rice Compared to Other Grains. Floyd and Newsom (1959) studied the feeding preference, and reproductive potential as influenced by various hosts. When Sitophilus zeamais Motschulsky was given a free and equal choice for feeding, it had the following decreasing preference: unpolished Zenith rice (40%), Martin combine sorghum (32.8%), Louisiana 522 maize (10.4%) and Hard red winter wheat (6.7%). As to the reproductive potential (different emergence) on various hosts, they observed that Sitophilus zeamais Motschulsky emerged most successfully in the following decreasing order: Sorghum (87.5),* unpolished rice (86.0), wheat (18.0), rough rice (6.0), maize (3.0), oats (0.0). It can be seen that maize was more preferred for feeding than wheat but gave less emergence. The latter may be due to antibiosis. According to Richards (1944) maize is not a favorable diet for Sitophilus because the embryo of maize is toxic to the first instar larvae and generally the eggs are laid near it in maize. That the variety may have played an important role in the rank of different grains observed by Floyd and Newsom is suggested by the study of Soderstrom (1962), who observed that Sitophilus zeamais Motschulsky preferred to oviposit first in Ks. 1639 corn, second in Martin sorghum, and third in Ponca wheat, in both experiments, either when they had a choice to oviposit in any of these three grains or when they were confined separately on each.

---

*Average progeny per replicate after 45 days.

Rough Rice and Beetles. Balzer (1942) stated that "the rice weevil attacks only grains of which the hulls have been broken or have failed to close properly after blooming." Floyd and Newsom (1959) observed that S. zeamais Motschulsky did little damage to rough rice of the variety Zenith, at 12% moisture stored adjacent to heavily infested maize. Many weevils were found dead and live ones were rarely found, "indicating that rough rice is not a suitable host for the species." Floyd and Newsom (1959) studied the interspecific competition of Sitophilus zeamais and Sitophilus oryzae on Zenith rough rice at 12.13% moisture. They observed that after three generations there was a ratio of 78 S. zeamais to 12 S. oryzae and after six generations there was a ratio of 62 S. zeamais to 38 S. oryzae. Therefore there was a trend for the S. oryzae to become dominant. "The smaller species is apparently capable of breeding in and emerging from kernels of rough rice in which narrow openings between the palea and lemma probably form a physical barrier to the large species."

Breese (1960) worked with three varieties of rough rice, Sughandi, D110 and D 52/37, and tested them in several ways to check their potential as hosts for the Sitophilus oryzae and Rhyzopertha dominica. Infesting only sound kernels of these varieties under three different relative humidities (75, 84.3 and 92.5%) and 25°C, he observed that neither S. oryzae nor R. dominica were able to breed in sound kernels of these varieties. He examined naturally infested samples of the varieties and after observing the characteristics of 1,500 infested kernels, he concluded that sound kernels were not damaged and classified the infested kernels in the following categories: (1) incompletely developed grains, (2) immature or "green" grain, (3) lemma and palea separated in one side only, (4) lemma and palea gapping, (5) husk

cracked or split (for any reason, mechanical or due to disease), (6) germinated. Breese (1964) referring to R. dominica and S. oryzae stated that,

> Varietal differences in the susceptibility of paddy to infestation by these pests should therefore always be considered in the light of both natural and induced defects. A variety which has a hard husk in which natural defects do not commonly occur, may have a higher potential resistance to infestation but if this husk is brittle and splits easily under certain methods of threshing, a considerable degree of infestibility may be induced.

Breese (1960, 1961 and 1964) pointed out that combine harvesting the rice gives a higher proportion of hulled and split grains and consequently makes possible the high infestations seen in stored paddy in many British Guiana mills."

Rough Rice and Sitotroga cerealella. The first instar larvae of Sitotroga cerealella (Oliv.) is able to bore its way through the sound husk of many varieties of rough rice provided there is proper moisture. This ability makes it to be a potential pest of sound kernels of rough rice. Douglas (1941) studied the relative susceptibility of 14 varieties of rough rice in the field during the years 1934 through 1937 at Crowley, Louisiana. The field infestation of the grains was 95% by S. cerealella. He found no significant differences among the 14 varieties. Breese (1964) stated that "Fernando (1959) has made some assessment of the extent to which field infestation of different varieties of paddy occurs in Ceylon."

MATERIALS AND METHODS

Insect Cultures

The Sitophilus zeamais Motschulsky used in this study was collected in Arkansas about ten years ago and has been reared in the stored grain

laboratory, Department of Entomology, Kansas State University. The weevils were reared on Ponca wheat and when they were about ten days old they were sieved from the cultures and mixed with 3/4 of a quart of wheat containing a tablespoon of 10% ovotran to free them from mites. After being in contact with the ovotran for ten minutes, they were sieved out and then were ready to be used in new cultures or in the experiments with rice. For new cultures about 200 g of Ponca wheat with about 12.6% moisture content were placed in a wide mouth quart Mason jar. This wheat was infested with a tablespoon of weevils which were allowed to oviposit for four days. These were sieved out and placed in two new jars with wheat like the first and were allowed to oviposit for four days. Therefore, each tablespoon of weevils, passed through ovotran, about 10 days old, were used to make three new cultures, staying in each jar laying eggs and feeding for four days. About one hundred twenty jars were prepared this way, at one time when most of the infestations were made, but 60 jars would have furnished enough weevils for the whole study. All the cultures were made as described above, but not all the experiments were infested with weevils of the same age. In the free choice experiments the varieties from 1 to 768 were infested with weevils about ten days old. In all other experiments weevils of about 20 days old were used.

Rough Rice

Samples of 50 gs. each representing 1,700 varieties from the 1964-1965 crop season were received from the U. S. Department of Agriculture collections at Stuttgart, Arkansas, Beaumont, Texas and Crowley, Louisiana; and three varieties were obtained from Instituto Agronomico at Campinas, Sao Paulo, Brazil. To each variety a number was assigned so that they could be

stored in order and a given variety could be picked up at any time without spending much time searching for it. The varieties are listed from 1 to 1700 in Table 2. Whenever possible the countries of origin and the names of the varieties are given. The varieties from 1 to 920 came from Beaumont, Texas. The varieties 1699 and 1700 came from Campinas, Brazil. The varieties 1085, 1112, 1115, 1129, 1134, 1141, 1163, 1164, 1318, 1323, 1344, 1349, 1373, 1383 came from Crowley, Louisiana. All others from 921 to 1668, except the 14 listed above, came from Stuttgart, Arkansas. The rice samples were placed in the freezer (0°F) for one week to eliminate any previous infestation. The Arkansas varieties had a moisture content of approximately 9% when they arrived. They were wrapped in cheese cloth and put in the rearing room in order to absorb moisture. The rearing room at this time had a constant relative humidity of 60% and 80°F. Under these conditions the seeds reached a moisture equilibrium of 11.5%. The seeds which came from Louisiana had approximately 12% moisture.

Two samples of six grams of each variety were weighed for the experiments making a total of 3,400 samples. These samples were placed in plastic boxes 1 7/8" x 1 7/8" x 3/4". To these samples of six grams, water was added to each one according to formula I in order to increase the moisture content to 13%.

Formula I.

$$\text{gs. of water added} = \left(\frac{100 - \text{present \% moisture}}{100 - \text{desired \% moisture}} \times 6 \text{ gs}\right) - 6 \text{ gs}$$

After adding water with an eye-dropper, the boxes were shaken and placed in the rearing room and four days later they were used in the experiments.

According to Juliano (1964) the rough rice reaches equilibrium in two to four days. All moisture measurements were made by the standard two-stage oven method (2 gs dried in fan ventilated oven for 1 h at 130°C). Hulled grains were removed, but all other grains with defects were left in the samples.

Free Choice Experiments

In these free choice experiments the weevils had the chance of moving from one variety to another. Four cages 27" x 27" x 6" high, were built using celotex for the bottom, glass for the sides and transparent plastic for the top. These parts were held in place by masking tape. The experiments were carried out in this type of cage, but it did not prove to be the best. The celotex is not so hard and due to necessary handling of the cage crevices may be formed at the joints. The weevils may sometimes scape or enter these crevices and adhere to the masking tape. At least partially for this reason there were fewer weevils counted in the varieties at the end of the experiment. The plastic boxes with the six gram samples of rough rice were placed in the cage in numerical order from the front to the bottom starting at the left side, with fourteen rows of 14 boxes each making a total of 196 boxes, four of which were the check variety Bluebonnet placed in the same position in each cage at the middle of the third row from each side. The Bluebonnet samples were identified by the addition of the letter a to the number of the variety set beside it. For example the Bluebonnet sample 35a was set up beside the variety 35. Once the varieties were placed inside, the cages were closed with a transparent plastic top in which a hole was made at the center and 2,920 weevils thus averaging 20 weevils per variety sample of six grams, were inserted through a funnel. They quickly dispersed over the cage and

many times the variety upon which they first fell had no weevils after two hours.

The first four cages were infested on June 16, 1965 and four others on July 11, 1965. The remaining 164 varieties were infested on July 14, 1965 using a smaller cage 25" x 25" x 4" high, of the same design. Once the weevils were placed inside the cages they could move around, feed and oviposit in any variety inside the cage. They were left in the cage for nine days. On the third, sixth and ninth days after infestation the weevils seen in each variety were counted through the transparent top of the cage. Weevils that were covered by the grains were not counted for they could not be observed. After the last count, nine days after infestation, all weevils were taken out of the cages. At first the largest bulk of weevils were taken out with a vacuum cleaner. Afterwards each sample was spread on a white paper and the remaining weevils were picked up. Once all weevils were taken out the lids were put back on the plastic boxes. The number of kernels damaged by the feeding activity of the weevils used in the infestation was recorded for each variety sample. Thirty days after infestation the weevils started emerging and were allowed to do so for 29 days. Then (59 days after initial infestation) the boxes were put in the freezer and these adults emerged were recorded for each variety.

When the first four cages were infested the conditions in the rearing room were 60% r.h. and 80°F. When infestation was made the seeds had about 13% moisture. Considering that the cages were prepared and covered up out of the rearing room, the relative humidity inside the cages where the seeds were could have been even lower than 60% r.h. According to Juliano (1964) the desorption equilibrium of four varieties of rough rice under 64% r.h.

and 81.5°F varied from 12.2 to 12.5%. The grain of the four first cages of the free-choice experiment most likely lost moisture. They stayed 14 days under the conditions above mentioned and were transferred afterwards into the "fly rearing room" where the conditions were about 75% r.h. and 80°F. Under 75% r.h. and 81.5°F the moisture equilibrium of four varieties of rough rice varied from 12.8 to 13.3% (Juliano, 1964). In the last five cages water was sprayed with a hand atomizer in order to raise the relative humidity. From July 12, 1965 to the end of the experiment the conditions in the rearing room were about 75% r.h. and 87°F. So except for these four first cages of the free choice experiments all the other tests were made under more favorable conditions of humidity (75%) and temperature (87°F).

For the last small cage of the free-choice experiments where varieties 1357 to 1700 were tested 30 weevils per variety were used for infestation. This was done because not many weevils were emerging and not much damage was done in the previously infested cages.

Non Choice Experiment

In this experiment similar conditions to the free choice experiments were used; the same amount of grain (6 gs), the same plastic boxes (1 7/8" x 1 7/8" x 3/4"), same initial moisture content of the seeds (13%), same number of weevils (20 per variety), the same number of days for feeding and oviposition of the infesting adults (9 days), and the same number of days were allowed for the weevils to emerge (29 days) and to freeze the boxes (59 days after infestation). However, in the non-choice experiment 20 weevils were confined in each plastic box without the chance of moving from variety to variety.

In the non-choice experiment about 200 varieties were infested daily beginning July 23 through August 1, 1963.

The varieties 101 to 600 were placed in plastic boxes with a hole about 1/4" to 1/2" in diameter in the lid which was covered by a plastic screen which gave some ventilation.

Temperature of 87°F and relative humidity of 75% remained constant over the period of the experiment.

Experiment with Selected Varieties

Sixteen varieties were selected out of the 765 varieties infested on June 18. Eight of these varieties Chipda No. 1 (var. 64), Palman No. 21 (var. 74), CI 8923 (var. 147), PI 16102 (var. 389), PI 283685 (var. 557) PI 160774 (var. 664), PI 160772 (var. 667), PI 160648 (var. 725), had had no weevils observed on them and had no kernels damaged by feeding. The other eight varieties, Tainan No. 21 (var. 418), CI 9000 (var. 450), No. 20 Konko Taikei To (var. 456), CI 9344 (var. 496), PI 282171 (var. 568), PI 279156 (var. 574), Bruin Sel. x BR (var. 616), Tsi Chih Chin (var. 677) had been badly damaged. Four commercial varieties, two from Brazil (Dourado Precoce and Betatais) and two from the United States (Bluebonnet and Arkrose) were included in this special test.

All the eight varieties which had not been damaged had a sound husk with short stiff hairs covering it, except Palman No. 21 (var. 74) whose kernels are long and thin and which had some kernels with palea and lemma opening and yet had not been damaged.

All the eight varieties that had been badly damaged had many kernels without hulls, many kernels with broken hulls and many broken kernels, but

all kernels with conspicuous defects were discarded before the experiment.

The same type of free-choice experiment already described was performed again with three replications of this small number of varieties. A plastic box containing sample of each variety were placed in one of three glass cages each 9 3/8" x 7 1/2" x 2" in randomized position and each glass cage being a replication. The only difference was that daily counts of the weevils on the varieties were made starting one day after infestation.

Evaluation of Varietal Differences

Varietal differences in the free choice experiments were evaluated based on three types of data.

1. Number of adults on each variety counted at intervals of three days in the general free choice experiments and counted every day in the free choice experiments with selected varieties.

2. Number of kernels damaged by the feeding of the adults used for initial infestation.

3. Number of weevils emerged completely or incompletely from each variety 59 days after infestation.

The evaluation of varietal differences in the non choice experiment based on the second and third items above mentioned.

Table 1. Date of infestation, age of weevils used, temperature and humidity in the rearing room, number of weevils, and number of the varieties in the cages of free choice experiments.

Date of Infestation	Cage No.	Varieties Tested	Nos. of Bluebonnet	Temp. °F.	% Rel. Hum.	Weevils Age in Days	No. of Weevils per var.
June 18	1	1 - 192	35a, 99a 107a, 161a	80	60 and 75	10	20
June 18	2	193 - 384	288a, 292a, 300a, 351a	80	60 and 75	10	20
June 18	3	385 - 576	416a, 484a, 492a, 543a	80	60 and 75	10	20
June 18	4	577 - 768	611a, 675a, 683a, 734a	80	60 and 75	10	20
July 11	5	769 - 960	803a, 853a, 861a, 925a	87	75	20	20
July 11	6	961 - 1152	994a, 1059a, 1067a, 1117a	87	75	20	20
July 11	7	1153 - 1344	1186a, 1251a, 1259a, 1309a	87	75	20	20
July 11	8	1345 - 1536	1378a, 1443a, 1451a, 1501a	87	75	20	20
July 14	9	1537 - 1700	1568a, 1615a, 1622a, 1670a	87	75	23	30

EXPERIMENTAL RESULTS

Free Choice and Non Choice Experiments

The results obtained in these experiments are presented in Tables 2 and 3. In Table 2 the results obtained in these two experiments are given for all the varieties tested, except the check variety.

Table 3 gives the results obtained in the free-choice experiment for the check variety Bluebonnet. In the right column of Table 2 (varietal feature), some characteristics that may render the rough rice more readily infested by rice weevils, are given for some varieties. The o means that the hull opens (Plate I, Figs. 1 and 2), that is, the variety has a tendency to have the palea and lemma separated. They may be either separated at only one side or be separated at the tip; in this paper the o stands for either. Not all the kernels of a variety open. In one sample of six grams of the variety Se Zic (1093) there were a total of 218 kernels and 160 kernels (73%) out of this total had the hull opened on one side. In other varieties there was a tendency for the hulls to open but not in as many kernels as in the variety 1093 and they were identified by so (some open). The number of kernels with opened hulls were not counted except for the variety 1093. The judgment in assigning the characteristic o or so to a variety, was based only on appearance and not on actual percentage of opened kernels. It is likely that errors were made and perhaps some varieties which do not have any labeled characteristic should be considered so, or some which were considered so should be considered o. All samples which had many kernels not mature were considered green. Some varieties with green kernels were damaged but some were not. Many varieties had broken hulls. All varieties that had

EXPLANATION OF PLATE I

Fig. 1. Variations of the open hull defect (Parted lemma and palea) in rough rice of Hill Sel. x JP x RSBR (var. 388). The kernel at the right opens only at the center of one side; the two in the center open at the side and also at the tip; and the left one gaps at the tip. This is a varietal influenced defect which allow infestations by Sitophilus spp.

Fig. 2. Rough rice Rexark x Asahi (var. 394), showing a sound husk at the right; in the center and left the palea and lemma are parted (open hull, genetic symbol o) and at the left the grain was completely eaten by rice weevil adults leaving only the husk untouched.

PLATE I

Fig. 1

Fig. 2

Table 2. Infestation by Sitophilus zeamais Mot. in free-choice and non-choice experiments; CI or PI no., country of origin, name, no. in the experiment and features that favor infestation in varieties of rough rice.

Var. no.	CI or PI no.	Country of Origin	Variety name	Free Choice experiment: Weevils counted on each variety: 3 days after Inf.	6 days after Inf.	9 days after Inf.	avg. no. of weevils per var.	Free Choice experiment: Weevils emerged: Feed* dam-age	In-com-plete	Com-plete	Total emerg	Non choice exp.: Weevils emerged: Feed dam-age	In-com-plete	Com-plete	Total emerg	Var. feature
1	PI 236422	Australia	Late caloro	5	5	1	3.6	4	0	1	1	6	0	1	1	
2	PI 223456	Afghanistan		17	12	12	13.6	22	1	4	5	10	1	3	4	tf**
3	PI 220408	Ceylon		2	1	0	1.0	0	0	0	0	0	0	0	0	
4	CI 8062	Peru	Benllock	3	3	1	2.3	1	1	0	1	4	0	0	0	
5	PI 223456	Afghanistan		19	33	22	24.6	49	1	7	8	18	4	4	8	
6	PI 223513	Afghanistan		0	1	0	0.3	0	0	0	0	0	0	0	0	
7	PI 264818			0	0	1	0.3	1	0	0	0	0	0	0	0	
8	PI 223515	Afghanistan		8	5	1	4.6	3	0	0	0	2	0	0	0	
9	PI 223518	Afghanistan		1	1	0	0.6	0	0	0	0	2	0	0	0	
10	PI 223894	Afghanistan	1277 S	16	11	6	11.0	18	1	2	3	11	0	3	3	tf
11	PI 190192	Ecuador		7	4	0	3.6	1	0	0	0	4	0	0	0	
12	PI 185811	Brit. Guiana	T 1	4	1	1	2.0	4	0	0	0	2	0	0	0	
13	PI 184386	Brit. Guiana		1	1	0	0.6	0	0	0	0	2	0	0	0	
14	CI 27-4			3	3	2	2.3	3	0	0	0	2	0	0	0	
15	PI 163575	Guatemala		2	1	1	1.3	1	0	0	0	5	0	0	0	
16	CI 1240	Ceylon		1	2	1	1.3	1	0	0	0	3	0	0	0	
17	CI 1160-1	Guatemala		13	6	11	10.0	7	1	2	3	2	0	0	0	
18	PI 264242			5	2	1	2.6	2	1	1	2	2	0	0	0	
19	PI 245354			2	0	0	0.6	0	0	0	0	0	0	0	0	
20	CI 8054-3	Australia	Byakkoku y 5006	14	8	6	9.3	11	0	1	1	5	1	0	1	tf
21	CI 8054-2	Australia	Byakkoku y 5006	1	0	0	0.3	0	0	0	0	0	0	0	0	
22	CI 8054-2	Australia	Byakkoku y 5006	4	2	3	3.0	4	1	0	1	5	0	0	0	
23	CI 8054	Australia	Byakkoku y 5006	1	3	6	3.3	4	0	0	0	2	0	0	0	
24	CI 5876-1	Soviet Union	Gidej	9	2	1	4.0	11	0	1	1	10	0	0	0	

*No. of kernels ** Broken hulls

Table 2 (cont.).

Table 2 (cont.).

Var. no.	CI or PI no.	Country of Origin	Variety name	Free Choice experiment: Weevils counted on each variety: 3 days after Inf.	6 days after Inf.	9 days after Inf.	avg. no. of weevils per var.	Free Choice experiment: Weevils emerged: Feed damage	In-complete	Com-plete	Total emerg	Non choice exp.: Weevils emerged: Feed damage	In-complete	Com-plete	Total emerg	Var. feature
25	PI 266091			8	2	1	3.6	2	0	0	0	2	0	0	0	
26	PI 266097			1	2	0	1.0	0	0	0	0	1	0	0	0	Fnd *
27	PI 266096			2	3	0	1.6	2	0	3	3	2	0	0	0	
28	PI 193153	Indonesia	Bengawan	2	2	1	1.6	1	0	0	0	2	0	0	0	Fnd
29	CI 7085	China		12	11	7	10.0	8	0	0	0	14	0	1	1	
30	CI 8636-1	Indonesia	Kerang Serang	41	33	29	34.3	40	1	5	6	20	2	3	5	
31	CI 5866	Soviet Union		3	4	2	3.0	0	0	0	0	1	0	0	0	
32	CI 7224	Indonesia		1	2	3	2.0	1	0	0	0	3	0	0	0	
33	CI 73871	China		4	3	3	3.3	1	0	1	1	3	0	0	0	
34	CI 7778			5	1	3	3.0	2	1	0	1	3	1	0	1	
35	CI 8330			9	6	7	7.1	5	0	1	1	5	0	2	2	
36	CI 8333	China	Ka Ying 20	1	5	3	3.0	1	0	0	0	1	0	0	0	
37	CI 7387	China	Ka Ying 20	3	10	2	5.0	3	0	1	1	8	0	0	0	
38	PI 184676	Iran		10	33	25	22.6	52	0	12	12	24	0	15	15	tf
39	PI 248166			33	26	36	31.6	45	1	14	15	3	1	0	1	tf
40	PI 220247			8	4	1	4.3	3	0	0	0	2	1	0	1	
41	PI 248485			2	1	2	1.6	1	0	0	0	1	0	0	0	
42	PI 248486			6	4	1	3.6	0	0	0	0	0	0	0	0	green
43	CI 8083	Viet Nam	Sai Bui Bao	10	5	3	6.0	4	0	1	1	3	0	0	0	green
44	PI 248489			2	0	1	1.0	1	0	0	0	5	0	0	0	
45	CI 5398-1	China		5	4	1	3.3	3	1	0	1	3	0	1	1	
46	PI 198134	Belgian Congo	Buphopa	7	3	4	4.6	4	0	0	0	6	0	0	0	
47	PI 222453	Belgian Congo	Yoda Ya A34 13	2	3	3	2.6	5	0	1	1	3	0	0	0	
48	CI 2584	Indonesia	Tondok	14	16	14	14.6	17	0	4	4	11	0	6	6	
49	CI 2061			0	0	4	1.3	1	0	0	0	3	0	0	0	
50	CI 7138	Indonesia		3	0	1	1.3	2	0	0	0	1	0	0	0	

*Fungus did not favor damage.

Table 2 (cont.).

Var. no.	CI or PI no.	Country of Origin	Variety name	Free Choice experiment: Weevils counted on each variety: 3 days after Inf.	6 days after Inf.	9 days after Inf.	avg. no. of weevils per var.	Free Choice experiment: Weevils emerged: Feed damage	In-complete	Com-plete	Total emerg	Non choice exp.: Weevils emerged: Feed damage	In-complete	Com-plete	Total emerg	Var. feature
51	PI 193155	Indonesia	Mas	0	1	1	0.6	2	0	0	0	2	0	0	0	
52	PI 193175	India		8	11	7	8.6	2	0	0	0	3	0	0	0	
53	PI 5339-2			1	0	2	1.0	1	0	0	1	0	0	0	0	
54	PI 220778	Indonesia	Djalen 37	32	30	25	29.0	30	0	4	4	15	0	10	10	tf, o*
55	PI 193175-1			7	2	0	3.0	1	0	0	0	4	0	0	0	
56	PI 220732	Indonesia	Gendjah Ratji 322	17	12	8	12.3	13	1	1	2	10	0	1	1	
57	PI 220742	Indonesia	Lusi 513	15	3	2	6.6	3	0	0	0	4	0	0	0	
58	PI 233156	Indonesia	Remadja	0	0	1	0.3	1	0	0	0	2	0	0	0	Fnd
59	CI 2683			0	1	0	0.3	1	0	0	0	2	0	0	0	Fnd
60	CI 2685			26	15	12	17.6	27	0	0	0	8	3	8	11	tf, o
61	CI 5816	India	Basmati	13	21	19	17.6	30	4	1	5	21	0	0	0	
62	CI 5947	India	Dacca No. 6	9	13	3	8.3	8	0	0	0	3	0	0	0	
63	CI 5998	India	Desi No. 2	1	1	2	1.3	1	0	0	0	6	0	0	0	
64	CI 5997	India	Chipda No. 1	0	0	0	0.0	0	0	0	0	1	0	0	0	Fnd
65	CI 6001	India	Pandhori No. 4	0	1	0	0.3	1	1	1	1	2	0	0	0	Fnd
66	CI 6002	India	Basmati No. 5	2	9	6	5.6	5	1	0	1	4	0	0	0	
67	CI 6015	India	Saffd No. 18	0	0	1	0.3	1	0	0	0	1	0	0	0	
68	CI 6008	India	Ziri No. 11	4	2	0	2.0	2	0	0	0	3	1	0	1	
69	CI 6008-1	India	Ziri No. 11	3	0	2	1.6	0	0	0	0	2	0	0	0	
70	CI 6008-2	India	Ziri No. 11	4	3	4	3.6	3	0	0	0	4	0	0	0	
71	CI 6011	India	Shona No. 14	11	2	1	4.6	3	0	0	0	2	0	1	1	
72	CI 6011-1	India	Buphopa	2	3	2	2.3	3	0	0	0	6	0	0	0	
73	CI 6013	India	Toga No. 16	13	4	1	6.0	2	0	0	0	4	0	1	1	
74	CI 6018	India	Palman No. 21	0	0	0	0.0	0	1	0	1	5	0	0	0	
75	CI 6018-1	India	Palman No. 21	12	7	2	7.0	5	1	0	1	6	0	0	0	

*Parted lemma and palea.

Table 2 (cont.)

Table 2 (cont.)

Var. no.	CI or PI no.	Country of Origin	Variety name	Free Choice experiment: Weevils counted on each variety: 3 days after Inf.	6 days after Inf.	9 days after Inf.	avg. no. of weevils per var.	Free Choice experiment: Weevils emerged: Feed damage	In-complete	Com-plete	Total emerg	Non choice exp.: Weevils emerged: Feed damage	In-complete	Com-plete	Total emerg	Var. feature
76	CI 6018-2	India	Palman No. 21	2	0	1	1.0	2	0	0	0	2	0	0	0	
77	CI 6018-3	India	Palman No. 21	3	0	1	1.3	1	0	1	1	6	0	0	0	
78	CI 6037	India	Vansi	6	6	2	4.6	5	0	1	1	6	0	0	0	
79	CI 6037-1	India	Vansi	18	26	23	22.3	28	0	4	4	21	0	1	1	tf
80	CI 6037-2	India	Vansi	25	32	17	24.6	43	0	4	4	25	0	6	6	tf
81	CI 6037-3	India	Vansi	3	1	1	1.6	2	1	1	2	7	0	0	0	
82	CI 6037-4	India	Vansi	5	4	2	3.6	6	0	0	0	6	0	0	0	
83	CI 8915	Haiti	Timonchette No. 3	3	2	0	1.6	1	0	1	1	2	0	0	0	
84	PI 229277	India	T 138	2	1	5	2.6	1	0	0	0	1	0	0	0	
85	CI 8976	India	Cross No. 1 No. 1 No. 17 x Njgkesar	12	5	1	6.0	2	1	0	1	4	0	0	0	
86	PI 229275	India	T 136	6	1	2	3.0	3	0	0	0	5	0	0	0	
87	CI 8980	India	R 3 Sultugurmaitia	5	3	4	4.0	9	0	1	1	7	1	1	2	green
88	PI 229276	India	T 137	3	2	6	3.6	3	2	1	3	13	0	0	0	so*
89	PI 229272	India	T 43	19	17	11	15.6	16	0	2	2	15	2	3	5	tf
90	PI 229266	India	T 9	4	1	1	2.0	0	0	0	0	2	0	0	0	
91	PI 229264	India	T 1	3	0	3	2.0	1	0	0	0	2	0	0	0	
92	PI 229262	India	N 32	2	3	3	2.6	1	0	0	0	4	1	0	1	
93	PI 229259	India	CH 10	0	5	3	2.6	3	0	0	0	8	0	1	1	
94	PI 221114	India	T 6522	4	3	3	3.3	2	0	1	1	7	0	0	0	
95	PI 221109	India	BJ 1	6	4	4	4.6	1	0	0	0	2	0	0	0	green
96	PI 208449			9	4	7	6.6	6	0	1	1	0	0	0	0	green
97	PI 201907	India	T 3	7	7	2	5.3	11	0	1	1	7	0	0	0	
98	PI 201906	India	T 1	22	5	2	9.6	8	2	0	1	6	0	1	1	
99	PI 201903	India	NP 130	7	1	2	3.3	1	0	0	0	6	0	0	0	
100	PI 201902	India	NP 125	1	0	2	1.0	2	1	0	1	3	0	0	0	

*Same as o but present in fewer kernels.

Table 2 (cont.).

Var. no.	CI or PI no.	Country of Origin	Variety name	Free Choice experiment: Weevils counted on each variety: 3 days after Inf.	6 days after Inf.	9 days after Inf.	avg. no. of weevils per var.	Free Choice experiment: Weevils emerged: Feed damage	In-complete	Com-plete	Total emerg	Non choice exp.: Weevils emerged: Feed damage	In-complete	Com-plete	Total emerg	Var. feature
101	PI 201901	India	NP 97	3	0	2	1.6	3	0	0	0	3	0	0	0	
102	PI 197613	India	T 9	2	2	1	1.6	1	0	0	0	1	0	0	0	
103	PI 193176	India		2	4	1	2.3	2	0	0	0	1	0	0	0	
104	PI 193175	India	Mas	5	0	2	2.3	1	1	1	2	4	0	0	0	
105	PI 180061	India	Dular aus	3	4	1	2.6	4	0	0	0	3	1	0	1	
106	PI 180060-1	India	Dhala shaita aus	0	0	1	0.3	0	0	0	0	4	0	0	0	
107	PI 180060	India	Dhala shaita aus	4	0	1	1.6	0	0	0	0	3	0	0	0	
108	PI 180059	India	Charnock aus	1	0	0	0.3	0	0	1	1	1	0	0	0	
109	PI 175028	India		13	7	2	7.3	4	1	1	2	5	0	0	0	
110	PI 175026	India		0	2	1	1.0	0	0	0	0	1	0	0	0	
111	PI 195981			13	5	1	6.3	3	0	1	1	3	0	0	0	
112	CI 8931			2	3	4	3.0	0	0	0	0	2	0	0	0	green
113	PI 220420	Philippines	Kinanda	1	5	1	2.3	1	0	0	0	4	0	0	0	
114	CI 9414			6	4	2	4.0	1	0	0	0	3	0	0	0	
115	CI 9424			0	12	1	4.3	2	1	0	1	5	0	0	0	
116	CI 9233	U.S.A. Tex.	Century rogue	4	3	0	2.3	0	0	0	0	0	0	0	0	
117	CI 9192	U.S.A. Ark.	Lacrosse x EP	8	11	5	8.0	5	0	0	0	5	0	1	1	
118	CI 9055	U.S.A. Ark.	Mesh Kinai x 6355 EBR	7	7	1	5.0	10	0	0	0	6	0	0	0	
119	CI 9028	U.S.A. Lo.	78 Rexoro	3	8	4	5.0	4	0	0	0	8	0	4	4	so, tf
120	B 61-2023		Sahak	3	0	1	1.3	2	0	0	0	5	0	0	0	
121	CI 9518			0	0	2	0.6	0	0	0	0	2	0	0	0	
122	CI 9517			0	3	1	1.3	0	0	0	0	3	0	0	0	
123	CI 9476			14	4	0	6.0	5	0	0	0	3	0	0	0	
124	B 61-2013			1	2	1	1.3	2	1	0	1	2	0	0	0	Fnd
125	CI 4450-2			8	0	2	3.3	4	0	0	0	1	0	0	0	

Table 2 (cont.).

Table 2 (cont.).

Var. no.	CI or PI no.	Country of Origin	Variety name	Free Choice experiment: Weevils counted on each variety: 3 days after Inf.	6 days after Inf.	9 days after Inf.	avg. no. of weevils per var.	Free Choice experiment: Weevils emerged: Feed dam-age	In-com-plete	Com-plete	Total emerg	Non choice exp.: Weevils emerged: Feed dam-age	In-com-plete	Com-plete	Total emerg	Var. feature
126	CI 9523			8	7	4	6.3	3	0	0	0	5	0	0	0	
127	CI 9519			0	1	4	1.6	1	0	0	0	1	0	0	0	
128	CI 4603-1	Philippines	Caligo	3	2	2	2.3	0	0	0	0	4	0	0	0	
129	CI 4603-4	Philippines	Caligo	1	2	1	1.3	0	0	0	0	4	0	0	0	
130	CI 4603-7	Philippines	Caligo	0	4	1	1.6	1	1	0	1	4	0	0	0	
131	CI 5249	Philippines		7	10	11	9.3	9	0	0	0	6	0	0	0	
132	PI 267996			10	2	0	4.0	4	0	0	0	5	0	0	0	
133	CI 5947-2	India	Dacca No. 6	4	13	14	10.3	26	0	2	2	22	0	1	1	tf
134	CI 5947-1	India	Dacca No. 6	1	1	4	2.0	5	0	0	0	3	0	0	0	
135	PI 220484	Brit. W. Indies	Palawan	7	8	2	5.6	3	0	0	0	2	0	0	0	
136	CI 4450	Philippines	Virgen	2	4	3	3.0	1	1	0	1	3	0	0	0	
137	CI 4373-4		Quinanda Inuac	3	5	2	3.3	2	0	0	0	2	0	1	1	
138	PI 267998			5	14	2	7.0	4	0	1	1	3	0	0	0	
139	CI 4373-3	Philippines	Quinanda Inuac	1	2	1	1.3	2	0	0	0	2	0	0	0	
140	PI 268002			11	5	5	7.0	2	0	0	0	2	0	0	0	
141	PI 268001			2	2	1	1.6	1	0	0	0	1	0	0	0	green
142	PI 275449			5	3	2	3.3	2	0	0	0	2	0	0	0	
143	CI 9099	Tailand	BMT 53 R 3536	3	7	2	4.0	0	0	0	0	3	0	0	0	Fnd
144	61-800			9	4	2	5.0	1	0	0	0	3	0	0	0	
145	PI 220486	Iran	Dom siah	5	4	8	5.6	2	0	0	0	4	0	0	0	
146	CI 8352	China	Peh Hkhak	1	0	1	0.6	0	0	0	0	1	0	0	0	
147	CI 8923	Haiti	No. 11	0	0	0	0.0	0	0	0	0	2	0	0	0	
148	CI 5998			12	16	4	10.6	28	1	2	3	20	2	8	10	
149	PI 233157	Indonesia	Sigadis	3	0	2	1.6	1	0	0	0	1	0	0	0	
150	CI 2942	Philippines	Binirhin	2	0	2	1.3	0	0	0	0	1	0	0	0	

Table 2 (cont.).

Var. no.	CI or PI no.	Country of Origin	Variety name	Free Choice experiment: Weevils counted on each variety: 3 days after Inf.	6 days after Inf.	9 days after Inf.	avg. no. of weevils per var.	Free Choice experiment: Weevils emerged: Feed damage	In-complete	Com-plete	Total emerg	Non choice exp.: Weevils emerged: Feed damage	In-complete	Com-plete	Total emerg	Var. feature
151	PI 223562	Philippines	Pinulot	5	6	9	6.6	8	0	0	0	4	0	0	0	
152	CI 2942-1	Philippines	Binirhin	4	4	2	3.3	6	0	0	0	3	0	0	0	
153	CI 3037	Philippines		7	3	0	3.3	4	0	0	0	5	0	0	0	tf
154	CI 7338-5	Philippines	Cana Bong Bong	1	0	1	0.6	1	0	0	0	0	0	0	0	
155	CI 5303			23	27	19	23.0	40	0	4	4	15	1	16	17	tf
156	CI 4373-1	Philippines	Quinanda Inuac	13	5	8	8.6	4	0	0	0	2	0	0	0	
157	CI 2934	Philippines		5	12	3	6.6	1	0	1	1	2	0	0	0	
158	CI 4373	Philippines	Quinanda Inuac	14	17	2	11.0	3	0	0	0	2	0	0	0	
159	CI 4060-2	Philippines	Paraga	0	0	1	0.3	0	0	0	0	0	0	0	0	
160	PI 220417	Philippines	Fortuna	2	0	2	1.3	2	0	0	0	0	0	0	0	
161	CI 8974			3	1	0	1.3	4	0	0	0	6	0	0	0	
162	CI 4322	Philippines	Inasana	11	3	0	4.6	3	0	0	0	7	0	0	0	
163	CI 4295-1	Philippines	Nagayon	1	1	1	1.0	0	0	1	1	3	0	0	0	
164	CI 3829-1	Philippines		44	26	14	28.0	39	0	5	5	4	4	14	18	tf
165	CI 3829	Philippines		3	1	3	2.3	2	0	0	0	5	0	0	0	
166	CI 8973			9	2	2	4.3	5	1	0	1	4	0	1	1	
167	PI 267993			14	4	2	6.6	6	0	1	1	4	0	2	2	
168	CI 3798-2	Philippines	Quinastano	9	6	5	6.6	3	0	1	1	1	0	0	0	
169	CI 8968-2	Philippines	NCU 111 16 345	22	26	27	25.0	25	2	8	10	7	3	8	11	tf
170	CI 3798-1	Philippines	Quinastano	19	23	13	18.3	26	0	3	3	6	0	3	3	
171	CI 3798	Philippines	Quinastano	23	17	12	17.3	17	1	4	5	4	0	5	5	
172	CI 3794-2	Philippines	Quinanda Itim	1	2	3	2.0	3	0	0	0	3	0	0	0	
173	CI 8956	Philippines	Chengtu Shui Pe Tiao	0	2	1	1.0	2	0	0	0	2	0	0	0	green
174	CI 8357	China	No. 3 Baifufugoya	5	13	5	7.6	15	1	1	2	7	0	1	1	so*
175	CI 8939	Philippines	Sinaguing	0	0	2	0.6	2	1	1	2	1	0	0	0	
176	PI 231417			0	2	0	0.6	0	0	0	0	0	0	0	0	

*This seems to be a mixture. The larger kernels open not the small ones.

Table 2 (cont.).

Var. no.	CI or PI no.	Country of Origin	Variety name	Free Choice experiment: Weevils counted on each variety: 3 days after Inf.	6 days after Inf.	9 days after Inf.	avg. no. of weevils per var.	Free Choice experiment: Weevils emerged: Feed damage	In-complete	Com-plete	Total emerg	Non choice exp.: Weevils emerged: Feed damage	In-complete	Com-plete	Total emerg	Var. feature
177	CI 37944			28	7	3	12.6	8	0	2	2	8	0	2	2	so, tf
178	CI 8959			9	5	6	6.6	2	1	1	2	4	0	2	2	
179	CI 3744	Philippines		3	7	4	4.6	0	0	0	0	5	0	0	0	
180	J-106			3	1	4	2.6	2	0	0	0	1	0	0	0	
181	CI 8968	Philippines	NCU 111 16 345	4	2	1	2.3	3	0	0	0	6	1	1	2	
182	CI 3491	Philippines	Maglanti	2	3	2	2.3	0	0	0	0	2	0	1	1	
183	CI 8475	Taiwan	No. 1 Sensho	38	50	38	42.0	57	0	7	7	33	2	21	23	tf, o
184	CI 8405	Taiwan	No. 5 Sibura	3	2	3	2.6	2	0	0	0	0	0	0	0	
185	CI 847			27	33	23	27.6	48	4	3	7	18	4	13	17	o
186	CI 8539	Taiwan	No. 1 KU No. 1706	3	4	5	4.0	2	2	0	2	1	0	0	0	Fd*
187	PI 267994			2	2	1	1.6	5	1	1	2	5	0	1	1	
188	CI 8951	Philippines	Pop Rice Co. 21	6	5	1	4.0	3	0	1	1	2	0	0	0	
189	PI 267995			2	3	1	2.0	4	0	0	0	3	0	0	0	green
190	CI 3364-1	Philippines		2	7	1	3.3	0	0	0	0	3	0	0	0	
191	CI 3625	Philippines	Shoe med	6	3	5	4.6	5	1	0	1	3	0	0	0	
192	CI 8564	Taiwan	No. 1 KU Mochi No. 68	1	4	3	2.6	3	0	1	1	3	0	0	0	
193	PI 274574			4	8	16	9.3	4	0	4	4	9	0	4	4	tf
194	CI 654-4			1	10	5	5.3	9	1	1	2	5	0	1	1	so
195	CI 3625-2	Philippines		10	9	11	10.0	4	2	1	3	3	0	0	0	
196	CI 654-2			6	6	15	9.0	10	1	1	2	5	1	4	5	so
197	CI 654-3			7	12	10	9.6	6	3	1	4	7	0	0	0	so
198	CI 1735-3	Philippines	Magsana ya	3	1	2	2.0	0	0	0	0	2	0	0	0	
199	CI 1735-2	Philippines	Magsana ya	3	0	0	1.0	1	2	0	2	2	0	0	0	
200	CI 1735-1	Philippines	Magsana ya	0	3	1	1.3	0	0	0	0	1	0	0	0	
201	CI 1760	Philippines	Tabucanan	0	7	7	4.6	2	0	0	0	0	0	0	0	
202	PI 165017	Nigeria	Italian Rice	4	1	5	3.3	3	0	1	1	2	0	0	0	

*Fungus favored damage.

Table 2 (cont.).

Var. no.	CI or PI no.	Country of Origin	Variety name	Free Choice experiment: Weevils counted on each variety: 3 days after Inf.	6 days after Inf.	9 days after Inf.	avg. no. of weevils per var.	Free Choice experiment: Weevils emerged: Feed damage	In-complete	Com-plete	Total emerg	Non choice exp.: Weevils emerged: Feed damage	In-complete	Com-plete	Total emerg	Var. feature
203	CI 1976-1	Philippines	Malagket	6	13	3	7.3	3	0	1	1	2	1	0	1	
204	CI 2697	Philippines	Dinalugot	7	22	19	16.0	18	1	4	5	10	0	2	2	tf
205	CI 2711	Philippines		15	27	24	20.3	20	3	3	6	11	0	0	0	
206	CI 2732	Philippines		9	7	6	7.3	14	1	2	3	6	0	0	0	tf, green
207	CI 2733-7	Philippines		7	12	12	10.3	20	2	2	4	10	1	3	4	tf
208	CI 2738	Philippines		10	19	21	16.6	19	1	2	3	6	0	1	1	
209	CI 2840			10	21	31	20.6	27	0	1	1	11	2	3	5	so, tf
210	CI 2822	Philippines		6	13	5	8.0	3	2	0	2	5	0	0	0	
211	CI 2825	Philippines		34	37	33	34.6	40	1	3	4	25	2	18	20	tf
212	CI 2835	Philippines	Jalbayonon	17	32	19	22.6	22	0	3	3	11	1	5	6	tf
213	CI 2851	Philippines		14	30	23	22.3	14	1	2	3	12	2	6	8	so, tf
214	CI 2938	Philippines		3	11	13	9.0	4	1	0	1	5	0	0	0	
215	CI 2938-2	Philippines		3	0	0	1.0	0	0	0	0	0	0	0	0	
216	PI 209996	Taiwan	Taipei Wu Quo	3	0	0	1.0	0	0	0	0	4	1	0	1	
217	PI 248487			1	0	3	1.3	0	0	0	0	1	0	0	0	
218	CI 2930	Philippines	Pileng Baybay	5	1	0	2.0	0	0	0	0	2	0	0	0	
219	CI 3212	Philippines		6	1	2	3.0	2	0	0	0	1	0	0	0	
220	CI 8481	Taiwan	No. 7 Rikuu No. 22	15	35	65	38.3	49	4	6	10	24	3	18	21	tf
221	CI 654			2	4	9	5.0	12	2	0	2	4	0	1	1	so
222	CI 3625-1	Philippines		5	5	3	4.3	4	0	1	1	6	0	0	0	
223	CI 8604	Taiwan	Kanan No. 2	4	4	6	4.6	6	2	0	2	4	0	2	2	tf
224	CI 8605	Taiwan	Kanan No. 3	4	16	14	11.3	8	0	3	3	4	1	1	2	
225	CI 8628	Taiwan	Karenko No. 5	2	8	5	5.0	6	0	0	0	6	0	1	1	
226	CI 1711	China	Zo Tsen Bow Sung	2	2	3	2.3	3	0	0	0	3	0	0	0	
227	PI 184124	Yugoslavia		3	3	9	5.0	4	0	0	0	5	0	0	0	
228	PI 203281	Chile	Sacol 1	11	8	3	7.3	8	2	4	6	5	1	5	6	

Table 2 (cont.).

Table 2 (cont.).

Var. no.	CI or PI no.	Country of Origin	Variety name	Free Choice experiment: Weevils counted on each variety — 3 days after inf.	6 days after inf.	9 days after inf.	avg. no. of weevils per var.	Free Choice experiment: Weevils emerged — Feed damage	In-complete	Com-plete	Total emerg	Non choice exp.: Weevils emerged — Feed damage	In-complete	Com-plete	Total emerg	Var. feature
229	PI 275447			4	1	2	2.3	3	0	1	1	4	0	1	1	
230	PI 271888			8	15	16	13.0	9	0	1	1	7	0	5	5	tf
231	PI 274573			1	0	4	1.6	1	0	1	1	3	0	1	1	
232	PI 248489			3	1	2	2.0	1	0	0	0	1	0	0	0	
233	PI 274578			16	21	34	23.6	22	0	1	1	11	2	11	13	
234	PI 247886			1	4	4	3.0	4	1	2	3	3	0	0	0	
235	PI 231418	India	Patni 6	0	4	1	1.6	4	1	0	1	5	0	0	0	
236	PI 231414	India	Early Sutarsar No. 39	3	0	0	1.0	1	0	0	0	1	0	0	0	green
237	PI 233069		AC 45	2	1	3	2.0	0	0	0	0	1	0	0	0	
238	CI 5876	Soviet Union	Gidej	1	4	10	5.0	3	1	1	2	4	0	1	1	
239	PI 233077	India	T 136	1	0	1	0.6	0	0	0	0	2	0	0	0	
240	PI 230094			2	0	2	1.3	0	0	0	0	0	0	1	1	
241	PI 233097	India	Bia Banda JBS 29	5	1	4	3.3	2	0	0	0	1	0	0	0	
242	PI 233098	India	Basumati JBS 36	3	0	9	4.0	2	0	0	0	7	0	0	0	
243	PI 233100	India	Tella Kalchu JBS 40	0	4	3	2.3	2	0	1	1	3	0	0	0	
244	PI 233894	India	S 67	1	0	4	1.6	0	0	1	1	2	0	0	0	
245	PI 234306	India	Jhona 349	2	4	3	3.0	5	1	0	1	3	0	1	1	
246	PI 238183	India	Sit Sail	7	5	5	5.6	1	0	0	0	5	0	0	0	
247	PI 238190	India	Charmarmumi	12	2	3	5.6	4	0	0	0	5	0	0	0	
248	PI 247880			3	0	1	1.3	0	0	0	0	1	0	0	0	
249	PI 247882			3	3	1	2.3	2	0	0	0	4	1	1	2	
250	PI 247883			2	2	2	2.0	0	0	0	0	0	0	0	0	
251	PI 247884			1	11	4	5.3	3	0	1	1	5	0	0	0	
252	PI 247885			0	3	8	3.6	1	0	1	1	5	0	1	1	
253	PI 247886			0	0	2	0.6	0	0	0	0	1	0	0	0	
254	PI 247891			2	7	10	6.3	5	0	1	1	3	1	1	2	

Table 2 (cont.).

Var. no.	CI or PI no.	Country of Origin	Variety name	Free Choice experiment: Weevils counted on each variety: 3 days after inf.	6 days after inf.	9 days after inf.	avg. no. of weevils per var.	Free Choice experiment: Weevils emerged: Feed damage	In-complete	Complete	Total emerg	Non choice exp.: Weevils emerged: Feed damage	In-complete	Complete	Total emerg	Var. feature
255	PI 256988			4	3	2	3.0	7	0	0	0	2	0	0	0	
256	CI 51	Philippines	Carangiang	0	4	6	3.3	1	0	0	0	3	0	0	0	
257	PI 209996	Taiwan	Taipei Wu Qio	4	4	4	4.0	2	1	0	1	3	0	0	0	
258	PI 240485			10	3	7	6.6	4	0	0	0	3	0	0	0	
259	CI 4966-1	Philippines	Cadacay	0	6	6	4.0	3	0	1	1	3	0	0	0	
260	CI 81C-1			1	3	4	2.6	1	0	0	0	1	0	0	0	
261	CI 81C-3			1	3	1	1.6	1	0	0	0	0	0	0	0	
262	CI 81C-4			5	0	1	2.0	0	0	0	0	1	0	1	1	
263	CI 81C-2			2	1	0	1.0	1	0	0	0	2	0	0	0	
264	CI 250	Philippines	Bondoc	2	0	2	1.3	1	0	0	0	0	0	0	0	
265	CI 250-1	Philippines	Bondoc	2	5	0	2.3	2	0	0	0	2	0	0	0	
266	CI 461-1	Philippines	Asse Y Pong	4	9	5	6.0	5	1	2	3	7	1	0	1	so
267	CI 654-1			9	11	4	8.0	6	0	2	2	6	0	1	1	
268	PI 165017-3	Nigeria	Italian Rice	2	4	12	6.0	3	0	2	2	5	0	0	0	
269	PI 183331	India		3	1	1	1.6	1	0	0	0	5	0	0	0	
270	PI 160993	China	Pien Chan Ying Tag	3	3	5	3.6	4	0	0	0	7	0	0	0	
271	PI 161042	China	Mei Shan Hei Ko	1	0	1	0.6	0	0	0	0	2	0	0	0	green
272	CI 9450			12	13	10	8.3	5	0	0	0	3	0	0	0	
273	PI 161043	China	Hu Wan Wan Hsien 213	0	1	1	0.6	2	0	0	0	3	0	0	0	
274	CI 9456			25	18	20	21.0	22	4	3	7	11	2	5	7	tf
275	CI 9207	U.S.A. Calif.	Caloro x BR	8	7	11	8.6	3	0	0	0	8	0	0	0	
276	PI 161044	China	Chiang An Tsao Pai Ku	6	4	4	4.6	2	0	0	0	1	0	0	0	
277	PI 160998	China	Hsiang Tsi Wan Tao	32	34	22	29.3	40	0	0	0	8	2	5	7	green, tf
278	CI 9459			6	7	5	6.0	3	1	1	2	5	0	0	0	
279	CI 9460			0	3	2	1.6	1	1	0	1	1	0	2	2	

Table 2 (cont.).

Table 2 (cont.).

Var. no.	CI or PI no.	Country of Origin	Variety name	Free Choice experiment: Weevils counted on each variety: 3 days after inf.	6 days after inf.	9 days after inf.	avg. no. of weevils per var.	Free Choice experiment: Weevils emerged: Feed damage	In-complete	Com-plete	Total emerg	Non choice exp.: Weevils emerged: Feed damage	In-complete	Com-plete	Total emerg	Var. feature
280	PI 161050	China	Yen Tu T 18	3	2	5	3.3	1	0	0	0	4	0	2	2	
281	CI 9368	U.S.A. Tex.	Early Short Grain Bulk	0	7	6	4.3	3	0	0	0	4	0	0	0	
282	PI 161046	China	Ku	1	2	0	1.0	0	0	0	0	3	0	0	0	
283	CI 8998-10	U.S.A. Lo.	Nato	2	15	12	9.6	6	1	0	1	8	0	0	0	
284	CI 9461			5	9	13	9.0	11	0	0	0	6	0	1	1	
285	PI 161002	China	Ho Ku	1	0	1	0.6	0	0	0	0	1	0	0	0	
286	CI 9375	U.S.A. Lo.	42 1 8 x 252	12	13	4	9.6	4	0	1	1	5	0	0	0	
287	PI 161003	China		2	2	1	1.6	1	0	0	0	2	0	0	0	
288	PI 161051	China	Chang Ch Sang Hsu Tao	6	4	2	4.0	4	0	1	1	2	0	0	0	
289	PI 161053	China	Ken Yen	16	3	1	6.6	2	0	0	0	1	0	0	0	green
290	PI 161055	China	Achin Sawing May H.	4	7	2	4.3	8	0	0	0	2	0	0	0	
291	CI 9462			8	1	3	4.0	8	0	0	0	5	0	0	0	
292	CI 9376	U.S.A. Tex.	Century Patna Rogue	4	15	8	9.0	5	0	2	2	3	1	0	1	
293	CI 9377	U.S.A. Lo.	42 1 8 x Rex 252	1	5	9	5.0	2	0	0	0	4	0	1	1	
294	CI 8351	China	Peh Bi Hun	4	2	6	4.0	1	1	0	1	2	0	0	0	
295	PI 248518			4	5	11	6.6	3	1	2	3	2	0	1	1	
296	PI 161058	China	Chiu Tswoh Tao Yi	1	4	3	2.6	0	0	1	1	1	0	0	0	
297	CI 8326-1	U.S.A. Tex.	Kxh x BR	5	10	15	10.0	12	1	0	1	10	1	4	5	green, tf
298	CI 9465			1	3	10	4.6	4	0	0	0	4	0	2	2	
299	CI 8350	China	Liu Tau A	5	9	7	7.0	6	0	0	0	1	0	0	0	
300	CI 8347	China	E Kha Liu Chin	6	3	5	4.6	2	0	0	0	3	0	0	0	
301	CI 7705-2			15	12	15	14.0	26	0	2	2	10	1	5	6	tf
302	CI 5451-2	U.S.A.	Lady Wright	2	1	6	3.0	2	1	0	1	3	0	0	0	
303	CI 8345	China	Taino No. 38	4	13	11	9.3	12	1	1	2	8	1	0	1	so
304	CI 8642			4	3	10	5.6	4	1	0	1	4	1	0	1	so

Table 2 (cont.)

Var. no.	CI or PI no.	Country of Origin	Variety name	Free Choice experiment: Weevils counted on each variety: 3 days after inf.	6 days after inf.	9 days after inf.	avg. no. of weevils per var.	Free Choice experiment: Weevils emerged: Feed damage	In-complete	Com-plete	Total emerg	Non choice exp.: Weevils emerged: Feed damage	In-complete	Com-plete	Total emerg	Var. feature
305	CI 8643	U.S.A. Tex.	Rexoro x Delitus B 321 B 403	0	4	2	2.0	0	0	0	0	0	0	0	0	
306	CI 9299	U.S.A. Calif.	Hy Mix Early	23	37	47	35.6	55	1	1	2	13	1	10	11	o, tf
307	CI 9286	U.S.A. Tex.	TP Sel	0	3	2	1.6	1	0	0	0	2	0	0	0	
308	PI 223482	Argentina	Chacarero F A	0	4	1	1.6	5	0	0	0	1	0	0	0	
309	CI 8343	China	Taino No. 34	0	5	1	2.0	3	0	0	0	1	0	0	0	
310	CI 8996	U.S.A. Lo.	Magnolia x 250 3	3	3	1	2.3	3	0	1	1	6	0	0	0	
311	CI 9509			0	1	2	1.0	4	0	0	0	2	0	1	1	
312	PI 161059	China	Fu Fao Yi	2	6	2	3.3	3	0	0	0	3	0	0	0	green
313	CI 9466			6	3	7	5.3	3	0	1	1	4	1	0	1	
314	PI 161060	China	Tung Ho	2	10	5	5.6	2	0	0	0	1	0	0	0	green
315	CI 8993	U.S.A. Tex.	Century Patna 231	11	7	2	6.6	7	0	0	0	1	0	1	1	
316	PI 238491	Argentina	Chacarero F A	7	3	6	5.3	3	0	2	2	4	0	0	0	
317	CI 8997	U.S.A. Lo.	220 26 x 2 2814	16	16	12	14.6	8	1	0	1	3	0	0	0	
318	PI 223484	Argentina	Japonesito de Meses	7	5	1	4.3	7	0	2	2	3	0	0	0	
319	PI 182256	Nigeria		5	9	5	6.3	3	0	0	0	4	0	0	0	
320	PI 168934-3	Spain		4	2	1	2.3	1	0	0	0	3	0	0	0	green
321	PI 223487	Argentina	Victoria	2	14	17	11.0	10	0	3	3	4	1	1	2	
322	PI 248486			1	2	2	1.6	0	0	1	1	0	0	0	0	green
323	PI 238490	Argentina	Cenit	1	0	0	0.3	0	0	0	0	5	0	0	0	
324	CI 9508			4	4	5	4.3	2	0	1	1	4	0	0	0	
325	CI 8998-5	U.S.A. Lo.	Nato	10	9	15	11.3	5	1	1	2	8	1	0	1	so
326	CI 8340	China	Kanan No. 2	4	1	1	2.0	1	0	0	0	3	0	0	0	
327	PI 266120			22	16	14	17.3	6	0	1	1	5	0	2	2	green
328	PI 215317	France	Allorio 11	4	3	6	4.3	2	0	3	3	5	0	0	0	

Table 2 (cont.).

Table 2 (cont.).

Var. no.	CI or PI no.	Country of Origin	Variety name	Free Choice experiment: Weevils counted on each variety: 3 days after inf.	6 days after inf.	9 days after inf.	avg. no. of weevils per var.	Free Choice experiment: Weevils emerged: Feedage	In-dam-age	com-plete	Com-pletee	Total emerg	Non choice exp.: Weevils emerged: Feedage	In-dam-age	com-plete	Com-pletee	Total emerg	Var. feature
329	PI 248487			20	7	5	10.6	8	2	1	3	6	1	1	2		green
330	PI 248485			4	2	1	2.3	2	0	0	0	3	0	0	0		green
331	PI 215942	Taiwan	Tainan 1ku No. 495	6	6	4	5.3	5	0	1	1	7	0	0	0		
332	PI 189450	Portugal	Raia	5	17	1	7.6	5	0	0	0	4	0	0	0		green
333	CI 9467			4	4	6	4.6	8	1	0	1	5	0	0	0		
334	CI 9472			5	5	3	4.3	5	0	0	0	3	0	0	0		
335	CI 9473			9	14	6	9.6	7	0	2	2	3	1	0	1		
336	PI 161065	China	97 46 1	19	22	19	20.0	22	1	2	3	7	0	4	4		green, tf
337	PI 161066	China	96 48 1	27	44	26	32.3	23	1	2	3	11	1	7	8		green, tf
338	PI 161067	China	98 45 1	14	32	24	23.3	19	1	2	3	15	0	4	4		green, tf
339	CI 9475			4	7	3	4.6	6	0	2	2	5	0	0	0		
340	PI 161068	China	97 51 2	20	19	12	17.0	12	0	3	2	19	1	3	4		green, tf
341	CI 9478			1	0	7	2.6	4	0	1	1	4	0	0	0		
342	CI 9480			13	5	4	7.3	6	0	0	0	6	0	0	0		
343	PI 161069	China	97 39 1	8	5	6	6.3	2	1	0	1	2	0	0	0		green
344	PI 161070	China	97 35 2	4	4	4	4.0	2	1	0	1	2	0	0	0		green
345	PI 161071	China	97 32 2	9	11	9	9.6	10	1	1	2	10	0	5	5		green, tf
346	CI 9481			11	8	8	9.0	7	1	1	2	7	0	0	0		
347	PI 161072	China	98 48 2	4	0	0	1.3	0	0	0	0	0	0	0	0		
348	CI 9482			15	18	5	12.6	8	0	0	0	8	0	0	0		so
349	CI 9484		98 49 1	7	11	3	7.0	5	0	0	0	5	0	0	0		
350	PI 161073	China		11	16	4	10.3	8	0	1	1	8	0	0	0		green
351	PI 161075	China	98 50 1	8	12	13	11.0	18	1	1	2	18	0	2	2		green
352	CI 9485			12	15	17	14.6	23	0	1	1	23	0	3	3		tf
353	PI 215970	Taiwan	Taino No. 38	13	9	6	9.3	3	0	0	0	3	0	0	0		
354	PI 215978	Taiwan	Takao No. 21	5	4	3	4.0	6	1	2	3	6	0	0	0		

Table 2 (cont.).

Var. no.	CI or PI no.	Country of Origin	Variety name	Free Choice experiment: Weevils counted on each variety: 3 days after inf.	6 days after inf.	9 days after inf.	avg. no. of weevils per var.	Free Choice experiment: Weevils emerged: Feed damage	In-complete	Com-plete	Total emerg	Non choice exp.: Weevils emerged: Feed damage	In-complete	Com-plete	Total emerg	Var. feature
355	CI 9487			10	6	3	6.3	3	0	1	1	3	0	0	0	
356	PI 161082	China	White Halga 1690	9	5	7	7.0	3	1	0	1	3	0	0	0	
357	CI 9488			11	5	4	6.6	7	0	0	0	7	0	0	0	
358	9506			16	9	7	10.6	6	0	0	0	6	0	1	1	
359	205979	Taiwan	Takao No. 22	15	5	5	8.3	7	0	0	0	7	2	0	2	
360	PI 161083	China	K 540	1	3	3	2.3	3	0	1	1	3	0	0	0	
361	CI 9489			17	9	8	11.3	3	2	4	6	4	1	0	1	
362	CI 9491			7	7	6	6.6	3	0	1	1	1	0	0	0	
363	PI 161085	China	Z 31 Tsung Mi	16	12	6	11.3	17	0	2	2	6	2	7	9	green
364	PI 165474	China	Szechuaw 422	1	3	0	1.3	1	0	0	0	2	0	0	0	
365	PI 247946			6	8	6	6.6	2	0	0	0	5	0	0	0	
366	PI 216002	Taiwan	Takao Iku No. 37	36	35	26	32.3	25	1	4	5	6	1	2	3	tf
367	CI 9493			8	7	4	6.3	1	0	1	1	3	0	0	0	
368	CI 9495			15	12	10	12.3	6	1	2	3	5	1	0	1	
369	CI 9497			13	8	6	9.0	4	0	1	1	3	0	0	0	
370	PI 165646	China	Nante	5	5	2	4.0	2	0	0	0	3	0	0	0	
371	PI 160677	China	Ai Kwoh 4 Hao	5	6	12	7.6	7	0	1	1	3	0	0	0	
372	PI 160979-2	China	Hung H Sieh Ju	2	2	2	2.0	2	0	0	0	3	0	0	0	
373	CI 9499			8	4	5	5.6	2	0	1	1	3	0	1	1	
374	CI 9500			19	7	9	11.6	2	1	0	1	3	0	0	0	
375	PI 216008	Taiwan	Takao Iku No. 43	12	16	10	12.6	3	2	0	2	3	0	0	0	
376	CI 9213	U.S.A. Ark.	BBT Sel	4	5	5	4.6	2	0	0	0	3	0	0	0	
377	PI 161005	China		3	4	3	3.3	2	1	0	1	1	0	0	0	
378	PI 161004	China		3	5	4	4.0	0	0	0	0	2	0	0	0	
379	PI 161006	China		6	4	5	5.0	2	0	0	0	3	0	0	0	

Table 2 (cont.).

Table 2 (cont.).

Var. no.	CI or PI no.	Country of Origin	Variety name	Free Choice experiment: Weevils counted on each variety: 3 days after inf.	6 days after inf.	9 days after inf.	avg. no. of weevils per var.	Free Choice experiment: Weevils emerged: Feed damage	In-complete	Com-plete	Total emerg	Non choice exp.: Weevils emerged: Feed damage	In-complete	Com-plete	Total emerg	Var. feature
380	CI 9379	U.S.A. Lo.	Century x Rexoro	10	3	7	6.6	8	1	0	1	12	0	0	0	
381	PI 161007	China		3	3	0	2.0	0	0	0	0	1	0	0	0	
382	CI 9381	U.S.A. Tex.	Century Patna 231 x B 4510 A	17	7	10	11.3	6	0	0	0	5	0	0	0	
383	PI 161008	China		3	2	5	3.3	0	0	0	0	0	0	0	0	
384	CI 9384	U.S.A. Tex.	Century Patna 231 x H O 12	10	7	10	9.0	10	0	0	0	6	0	0	0	o
385	PI 161011	China		3	2	3	2.6	0	0	0	0	0	0	0	0	
386	PI 161011	China		2	0	2	1.3	0	1	0	1	0	0	0	0	
387	CI 9385	U.S.A. Lo.	42814 x Bluebonnet	4	0	3	2.3	1	0	0	0	0	0	0	0	
388	CI 9386	U.S.A. Ark.	Hill Sel. x JP x RSBR	17	10	2	9.6	8	0	0	0	4	0	0	0	
389	PI 16102			0	0	0	0.0	0	0	0	0	2	0	0	0	
390	PI 160868	China	Chung TA 312 Hao x Binastian F 3	14	4	2	6.6	7	0	2	2	6	1	3	4	green
391	PI 161014	China	Ping Shan Kan Jien Tsai	6	1	2	3.0	1	0	0	0	4	0	0	0	
392	PI 161017	China	Lang Chung Yi Lung Ma Ma Ku	2	1	0	1.0	1	0	0	0	0	0	0	0	
393	CI 9392	U.S.A. Tex.	Blue Bonnet x Century P 231	3	3	2	2.6	4	0	0	0	5	0	0	0	
394	CI 9395	U.S.A. Ark.	Rexark x Asahi	8	16	3	9.0	27	4	8	12	13	2	3	5	o
395	PI 16108	China		2	0	2	1.3	3	0	3	3	5	1	0	1	
396	CI 9403			2	5	4	3.2	7	2	1	3	2	0	0	0	so
397	CI 9404			24	14	6	14.6	17	2	1	3	8	0	3	3	so, tf
398	CI 161019	China	Yen Shan Ma Chiu Ku	7	1	1	3.0	2	0	0	0	3	0	0	0	
399	PI 161021	China	Cheng Kiu San Ko Tswen Ju Ku	8	9	2	6.3	3	0	0	0	2	0	0	0	

Table 2 (cont.)

Var. no.	CI or PI no.	Country of Origin	Variety name	Free Choice experiment: Weevils counted on each variety: 3 days after inf.	6 days after inf.	9 days after inf.	avg. no. of weevils per var.	Free Choice experiment: Weevils emerged: Feed damage	In-complete	Com-plete	Total	Non choice exp.: Weevils emerged: Feed damage	In-complete	Com-plete	Total	Var. feature
400	CI 9405			11	7	2	6.6	4	0	0	0	12	0	0	0	
401	CI 9406			13	6	6	8.3	5	1	2	3	3	1	4	5	
402	PI 161022	China	Haino Chiu Ku	2	1	1	1.3	0	0	0	0	1	0	0	0	
403	PI 161023	China	Chang Ling Yuan Yang Ku	14	0	2	5.3	0	0	1	1	2	0	0	0	
404	CI 9407			7	11	3	7.0	7	1	0	1	5	0	0	0	
405	PI 161023	China	Chang Ling Yuan Yang Ku	1	3	1	1.6	3	0	2	2	2	0	0	0	
406	PI 161027	China	Yang Chiu Ku	12	1	1	4.6	3	0	0	0	5	0	0	0	
407	CI 9413			2	1	3	2.0	4	0	1	1	6	0	0	0	
408	CI 9415			14	9	7	10.0	9	2	0	2	5	1	1	2	
409	PI 215939	Taiwan	Tainan Iku No. 490	9	11	8	9.3	5	2	1	3	5	0	3	3	
410	PI 161028	China	Kan Tien Ju	23	33	22	26.0	31	9	13	22	13	0	5	5	tf
411	PI 161029	China	Pu Chiang Hsiao Chiu Ku	0	3	2	1.6	0	0	0	0	2	0	0	0	
412	CI 9416			9	5	7	7.0	5	0	0	0	3	0	0	0	
413	PI 215941	Taiwan	Tainan Iku No. 492	11	24	7	14.0	11	1	1	2	11	0	0	0	
414	PI 215945	Taiwan	Tainan Iku No. 500	13	0	4	5.6	2	3	5	8	4	1	1	2	
415	CI 9417			10	0	0	3.3	5	0	1	1	5	1	1	2	
416	PI 161034	China	Hsiao Chiu Ku	2	2	2	2.0	3	0	0	0	2	0	0	0	
417	PI 215932	Taiwan	Tainan Iku No. 446	1	2	1	1.3	0	0	0	0	4	0	0	0	
418	PI 215930	Taiwan	Tainan No. 21	34	41	42	39.0	30	1	31	32	20	5	30	35	tf, Fd
419	CI 9418			1	5	0	2.0	5	0	0	0	1	0	1	1	
420	CI 9419			4	5	4	4.3	3	0	0	0	3	0	0	0	
421	PI 160875	China	Chung Ta 312 Hao x Binostian F 3	1	3	1	1.6	2	0	1	1	3	0	0	0	
422	CI 9423			4	0	3	2.3	0	0	0	0	2	0	0	0	
423	PI 160878	China	Chung Ta 312 Hao x Binostian F 3	5	4	8	5.6	3	1	1	2	3	0	0	0	

Table 2 (cont.).

Var. no.	CI or PI no.	Country of Origin	Variety name	Free Choice experiment: Weevils counted on each variety: 3 days after inf.	6 days after inf.	9 days after inf.	avg. no. of weevils per var.	Free Choice experiment: Weevils emerged: Feed damage	In-complete	Com-plete	Total emerg	Non choice exp.: Weevils emerged: Feed damage	In-complete	Com-plete	Total emerg	Var. feature
424	PI 161035	China	Hei Mi Chan	2	2	1	1.6	0	0	0	0	1	0	0	0	
425	PI 215936	Taiwan	Tainan 1ku No. 487	8	2	4	4.6	2	3	6	9	5	1	0	1	so
426	PI 215937	Taiwan	Tainan 1ku No. 488	2	2	2	2.0	1	1	2	3	4	0	0	0	
427	PI 190199-1	Brazil	Japonez	6	12	4	7.3	6	0	0	0	2	1	2	3	
428	PI 216009	Taiwan	Takao 1ku No. 44	3	4	1	2.6	2	0	1	1	2	0	0	0	
429	PI 248517			4	3	4	3.6	8	0	1	1	4	0	1	1	
430	PI 215933	Taiwan	Tainan 1ku No. 484	4	4	3	3.6	1	0	2	2	2	1	0	1	
431	CI 9442			3	6	5	4.6	5	0	2	2	4	0	0	0	
432	CI 9214	U.S.A. Tex.		7	3	0	3.3	3	0	1	1	5	0	1	1	
433	CI 9233	U.S.A. Tex.	Century Rogue	2	0	0	0.6	3	0	0	0	4	0	0	0	
434	CI 9502			11	12	3	8.6	2	0	1	1	3	1	2	3	
435	CI 8076	Italy	P 6	2	4	2	2.6	2	1	0	1	9	0	0	0	
436	PI 161041	China	Chiang Hwa Leng Shwei Ku	0	0	0	0.0	1	1	0	1	1	0	0	0	
437	CI 9425			18	13	6	12.3	7	1	5	6	4	0	1	1	
438	CI 9440			7	3	2	4.0	9	0	1	1	3	0	0	0	
439	CI 9439-2			35	12	5	17.3	13	0	0	0	3	0	0	0	
440	CI 9441			7	7	2	5.3	7	1	0	1	7	0	0	0	
441	CI 9443			6	9	1	5.3	9	0	0	0	2	1	0	1	
442	CI 8998	U.S.A. Lo.	253 6 2 x 322A6 23	2	12	5	6.3	4	0	0	0	1	0	0	0	
443	PI 160780	China	Chiang Wan 15	10	15	8	11.0	6	0	8	8	2	0	0	0	
444	PI 160887	China		5	4	0	3.0	1	0	0	0	2	0	0	0	
445	PI 160895	China	Chung Ta 312 Hao x Binastian F-3	12	4	4	6.6	2	1	0	1	3	0	0	0	
446	CI 9240	U.S.A. Tex.	T P 49 x Hill Medium	8	2	1	3.6	2	0	0	0	5	0	0	0	
447	PI 160778	China	P 154	12	9	4	8.3	5	0	1	1	3	0	0	0	green

Table 2 (cont.).

Var. no.	CI or PI no.	Country of Origin	Variety name	Free Choice experiment: Weevils counted on each variety: 3 days after inf.	6 days after inf.	9 days after inf.	avg. no. of weevils per var.	Free Choice experiment: Weevils emerged: Feed dam age	In-com-plete	Com-plete	Total emerg	Non choice exp.: Weevils emerged: Feed dam age	In-com-plete	Com-plete	Total emerg	Var. feature
448	PI 160783	China	Shan Tien Swei	0	1	2	1.0	0	0	0	0	0	0	0	0	
449	PI 160788	China	Haigo Tsi Chung	2	1	0	1.0	3	0	1	1	3	0	0	0	
450	CI 9000	U.S.A. Lo.	250 129 x Frag Fortuna	33	35	41	36.3	25	1	24	25	8	0	9	9	tf
451	CI 9005	U.S.A. Lo.	Rexoro x Zenith	7	9	5	7.0	4	0	1	1	4	0	0	0	
452	CI 9006	U.S.A. Lo.	Rexoro x Zenith	4	4	5	4.3	5	0	1	1	4	0	1	1	
453	CI 8526	Taiwan	No. 1ku No. 1570	1	7	1	3.0	11	0	5	5	7	0	0	0	so
454	CI 8492	Taiwan	Taino No. 40	3	8	3	4.6	2	0	1	1	3	0	0	0	
455	PI 226307	Egypt	Sabiny	4	14	10	9.3	5	1	4	5	5	0	1	1	tf, green
456	CI 8446	Taiwan	No. 20 Konko Taikei To	36	61	45	47.3	43	3	30	33	11	0	27	27	tf
457	CI 8397	Taiwan	No. 6 Haikongpau	4	3	2	3.0	0	0	0	0	2	0	0	0	
458	CI 8072	Italy	Balilla C C No. 306	3	1	4	2.6	1	0	0	0	0	0	0	0	
459	CI 8422	Taiwan	No. 10 Pohstsu Tayaru	2	3	0	1.6	2	1	0	1	2	0	0	0	
460	CI 9246	U.S.A. Tex.	Bluebonnet x TP x R SBR	7	4	5	5.3	7	1	2	3	4	0	1	1	
461	PI 160897-1	China	Hwa Yang Ju x Nerovilone F 2	2	4	7	4.3	4	1	3	4	6	0	0	0	
462	CI 9013	U.S.A. Lo.	Toro	23	27	25	25.0	36	3	29	32	10	1	6	7	o, tf
463	PI 215924	Taiwan	Tainan No. 15	3	0	0	1.0	2	0	0	0	3	2	0	2	so, Fd
464	CI 8404	Taiwan	Payaipatosu	5	1	1	2.3	1	0	0	0	2	0	0	0	
465	PI 215854	Taiwan	Nchiku 1ku No. 154	13	12	6	10.3	5	4	12	16	10	0	2	2	so
466	PI 215875	Taiwan	Taichu No. 65	2	2	1	1.6	0	0	1	1	2	0	0	0	
467	PI 160791	China	Shen Swei	6	7	7	6.6	20	0	3	3	10	0	0	0	
468	CI 8543	Taiwan	No. 1ku No. 1771	0	4	1	1.6	0	0	0	0	3	0	0	0	
469	CI 9249	U.S.A. Tex.	Bluebonnet See	0	2	2	1.3	1	0	0	0	2	0	0	0	
470	PI 215814	Taiwan	Eaten 1ku No. 17	5	11	4	6.6	4	1	7	8	4	0	0	0	Fd
471	PI 215851	Taiwan	Shinchiku 1ku No. 125	1	0	1	0.6	1	0	0	0	0	0	0	0	
472	PI 215905	Taiwan	Taihoku No. 177	6	12	4	7.3	4	3	5	8	2	1	0	1	Fd
473	CI 8371	Taiwan	No. 2 Mandalagiri	11	9	10	10.0	5	0	5	5	4	0	1	1	

Table 2 (cont.).

Table 2 (cont.).

Var. no.	CI or PI no.	Country of Origin	Variety name	Free Choice experiment: Weevils counted on each variety: 3 days after inf.	6 days after inf.	9 days after inf.	avg. no. of weevils per var.	Free Choice experiment: Weevils emerged: Feedage	In-complete	Com-plete	Total emerg	Non choice exp.: Weevils emerged: Feedage	In-complete	Com-plete	Total emerg	Var. feature
474	CI 8361	China	Komapatai	5	4	1	3.3	1	0	0	0	0	0	0	0	
475	CI 8355-3	China	No. 1 Pazumatamaru	17	21	17	18.3	15	2	8	10	7	2	4	6	tf
476	CI 9255	U.S.A. Tex.	R 7689 x RN	18	9	9	12.0	11	10	22	32	6	7	8	15	o
477	CI 9278	U.S.A. Tex.	BBT x TP x R SBR	4	8	4	5.3	5	0	4	4	7	0	0	0	
478	PI 160900	China	Chin Chiu x Tsi Ta Heu F 3	10	9	3	7.3	2	1	1	2	2	0	0	0	
479	PI 160902	China	Chiu Chiu Ku x Nan Toh Hjo F 3	5	5	2	4.0	5	0	1	1	3	0	0	0	
480	PI 160906	China	Ai Yeh Lu	5	2	1	2.6	4	0	0	0	1	0	0	0	
481	CI 9279	U.S.A. Tex.	BBT x TP x R SBR	6	11	3	6.6	4	0	1	1	4	0	2	2	so, tf
482	PI 160916	China		1	0	1	0.6	0	0	0	0	2	0	0	0	
483	PI 160918	China		6	0	0	2.0	0	0	0	0	4	0	0	0	
484	PI 9292	U.S.A. Tex.	TP 49 x TP x R SBR	4	5	3	4.0	0	1	0	1	1	0	0	0	
485	PI 9294	U.S.A. Ark.	Hill See x TP x R SBR	6	13	5	8.0	4	1	0	1	5	1	0	1	
486	PI 160921	China	Ai Yeh Lu	0	0	3	1.0	0	0	1	1	5	0	0	0	
487	PI 160922	China		1	3	5	3.0	2	0	1	1	3	0	0	0	
488	PI 160926			8	6	2	5.3	2	0	1	1	1	0	0	0	
489	CI 9300	U.S.A. Calif.		15	33	21	23.0	20	6	13	19	11	0	1	1	o
490	CI 9338	U.S.A. Calif.	CI 111 x Caloro	2	2	4	2.6	1	0	2	2	2	1	0	1	
491	PI 160937	China	Ai Yeh Lu	6	3	4	4.3	2	0	3	3	2	0	0	0	
492	CI 9340-1			22	41	28	30.3	22	11	16	27	17	4	8	12	o, tf
493	9340-2			9	17	13	13.0	17	7	11	18	16	3	4	7	o, tf
494	PI 160949	China	Ai Yeh Lu	3	3	1	2.3	1	0	0	0	1	0	0	0	
495	PI 160966	China	Chiu Chiu Ku x Non Toh Hjo F 3	0	1	1	0.6	0	0	0	0	2	0	0	0	
496	CI 9344	U.S.A. Calif.	C 11111 x Caloro	51	66	30	49.0	43	1	16	17	11	2	22	24	tf

Table 2 (cont.).

Var. no.	CI or PI no.	Country of Origin	Variety name	Free Choice experiment: Weevils counted on each variety: 3 days after inf.	6 days after inf.	9 days after inf.	avg. no. of weevils per var.	Free Choice experiment: Weevils emerged: Feeding damage	Incomplete	Complete	Total emerg	Non choice expt.: Weevils emerged: Feeding damage	Incomplete	Complete	Total emerg	Var. feature
497	PI 160968-1			3	3	2	2.6	2	0	2	2	1	0	0	0	
498	PI 160962-2			4	5	1	3.3	2	0	1	1	2	0	0	0	
499	CI 9351	U.S.A. Tex.	TP 49 x B 3812 A	7	14	8	9.6	12	3	5	8	5	0	3	3	so, tf
500	PI 160970	China	Yen Tu	2	4	1	2.3	2	0	0	0	2	0	0	0	
501	PI 277250			5	4	1	3.3	2	1	3	4	5	0	0	0	
502	PI 277271			0	6	1	2.3	2	0	3	3	2	0	0	0	
503	PI 277415			9	7	4	6.6	4	1	0	1	4	0	0	0	
504	PI 276425			15	11	4	10.0	3	0	3	3	4	0	0	0	
505	PI 276901			1	5	2	2.6	4	0	4	4	3	0	1	1	
506	PI 282194			26	24	23	24.3	17	1	9	10	10	4	6	10	tf
507	PI 277223			11	10	5	8.6	2	0	5	5	8	0	0	0	
508	PI 277412			0	5	4	3.0	2	0	0	0	1	0	0	0	
509	PI 277227			5	11	4	6.6	4	0	2	2	1	0	0	0	
510	PI 277229			3	3	2	2.6	2	0	1	1	3	0	0	0	
511	PI 282196			0	3	2	1.6	0	0	0	0	1	0	0	0	
512	PI 282197			27	59	36	40.6	21	1	27	28	18	4	18	22	tf
513	PI 275450			7	16	6	9.6	2	0	4	4	4	0	0	0	
514	PI 277232			7	12	0	6.3	0	0	2	2	5	1	1	2	
515	PI 277237			4	5	2	3.6	1	2	2	4	6	1	2	3	so
516	PI 277235			9	15	2	8.6	3	1	9	10	4	0	2	2	so
517	PI 277233			4	7	4	5.0	4	1	4	5	7	0	1	1	
518	PI 277226			1	0	1	0.6	1	0	3	3	3	0	0	0	so
519	PI 277222			12	8	2	7.3	2	2	5	7	4	0	1	1	so
520	PI 277238			15	8	5	9.3	2	1	7	8	5	1	0	1	so

Table 2 (cont.).

Table 2 (cont.).

Var. no.	CI or PI no.	Country of Origin	Variety name	Free Choice experiment: Weevils counted on each variety: 3 days after inf.	6 days after inf.	9 days after inf.	avg. no. of weevils per var.	Free Choice experiment: Weevils emerged: Feed age	In-com-plete	Com-plete	Total	Non choice exp.: Weevils emerged: Feed age	In-com-plete	Com-plete	Total emerg	Var. feature
521	PI 277224			12	4	4	6.6	3	1	5	6	4	0	1	1	so
522	PI 277225			4	2	5	3.6	2	1	4	5	2	0	0	0	
523	PI 277241			8	9	4	7.0	5	0	0	0	6	0	0	0	
524	PI 277409			10	10	2	7.3	5	0	0	0	3	0	0	0	
525	PI 282188			22	31	12	21.6	23	5	9	14	4	0	1	1	green, tf
526	PI 277240			6	5	3	4.6	4	0	3	3	3	0	0	0	
527	PI 277246			16	15	5	12.0	3	0	2	2	3	0	1	1	
528	PI 277247			2	6	2	3.3	1	0	1	1	4	0	1	1	
529	PI 277249			9	5	5	6.3	4	0	2	2	8	1	2	3	Fd
530	PI 282209			6	9	6	7.0	5	0	8	8	6	1	3	4	tf
531	PI 281789			9	7	5	7.0	4	0	1	1	4	0	0	0	
532	PI 282940			1	0	0	0.3	0	0	0	0	1	0	0	0	
533	PI 281792			8	10	3	7.0	3	0	1	1	4	0	0	0	
534	PI 281843			1	0	0	0.3	1	0	0	0	4	0	0	0	
535	PI 283680			3	7	3	4.3	1	0	1	1	2	0	0	0	
536	PI 279141			1	3	2	2.0	0	0	0	0	2	0	0	0	
537	PI 281845			1	7	0	2.6	3	0	0	0	2	0	0	0	Fnd
538	PI 281857			1	3	0	1.3	1	0	0	0	0	0	0	0	
539	PI 281858			2	0	1	1.0	0	0	0	0	0	0	0	0	
540	PI 281859			3	2	1	2.0	0	0	0	0	1	0	0	0	
541	PI 277415			0	1	0	0.3	0	0	0	0	2	0	0	0	
542	PI 281861			0	6	1	2.3	1	0	2	2	2	0	0	0	
543	PI 279137			1	7	0	2.6	1	0	1	1	4	0	0	0	
544	PI 283679			0	2	0	0.6	0	0	0	0	2	0	0	0	
545	PI 283682			2	5	1	2.6	2	0	0	0	4	0	0	0	
546	PI 283683			1	2	1	1.3	0	0	0	0	4	0	0	0	

Table 2 (cont.).

Var. no.	CI or PI no.	Country of Origin	Variety name	Free Choice experiment: Weevils counted on each variety: 3 days after inf.	6 days after inf.	9 days after inf.	avg. no. of weevils per var.	Free Choice experiment: Weevils emerged: Feed damage	In-complete	Com-plete	Total	Non choice exp.: Weevils emerged: Feed damage	In-complete	Com-plete	Total	Var. feature
547	CI 4828			3	1	1	1.6	0	0	0	0	1	0	0	0	
548	PI 279138			4	3	3	3.3	3	0	0	0	1	0	1	1	
549	PI 279174			4	4	1	3.0	1	0	0	0	2	0	0	0	
550	PI 279132			0	6	0	2.0	2	0	0	0	3	0	0	0	
551	PI 279145			13	11	3	9.0	5	0	0	0	2	0	0	0	
552	PI 279146			1	4	2	2.3	2	0	0	0	1	0	0	0	
553	PI 277245			18	14	3	11.6	4	0	0	0	2	0	0	0	
554	PI 279129			3	9	6	6.0	2	1	1	2	2	0	0	0	
555	PI 279153			6	17	7	10.0	14	0	0	0	5	0	0	0	
556	PI 279150			7	8	8	7.6	3	0	4	4	4	0	0	0	so
557	PI 283685			0	0	0	0.0	0	0	0	0	3	0	0	0	
558	PI 282120			11	10	4	8.3	4	0	1	1	1	0	0	0	
559	PI 275421			2	2	1	1.6	0	0	0	0	0	0	0	0	
560	PI 282126			5	4	7	5.3	4	0	1	1	5	0	0	0	
561	PI 275425			1	2	3	2.0	1	0	0	0	4	0	0	0	green
562	PI 279139			5	2	4	3.6	3	0	1	1	3	0	0	0	
563	PI 279129			0	2	2	1.3	0	1	0	1	1	0	0	0	green
564	PI 245717			0	6	2	2.6	3	0	0	0	3	0	0	0	
565	PI 279138			3	3	3	3.0	3	0	0	0	3	0	0	0	
566	PI 27140			8	6	2	5.3	3	0	0	0	3	0	0	0	green
567	PI 279156			7	7	3	5.6	1	0	0	0	3	0	1	1	green
568	PI 282171			44	59	31	44.6	36	3	3	6	12	2	22	24	tf
569	PI 282182			9	17	3	9.6	3	1	1	2	4	0	1	1	
570	PI 279155			11	13	5	9.6	5	1	0	1	4	0	2	2	
571	PI 271672			7	11	4	7.3	4	0	0	0	4	0	0	0	
572	PI 279174			3	0	3	2.0	0	0	0	0	2	0	0	0	

Table 2 (cont.).

Var. no.	CI or PI no.	Country of Origin	Variety name	Free Choice experiment: Weevils counted on each variety: 3 days after inf.	6 days after inf.	9 days after inf.	avg. no. of weevils per var.	Free Choice experiment: Weevils emerged: Feed age	In-com-plete	Com-plete	Total emerg	Non choice exp.: Weevils emerged: Feed age	In-com-plete	Com-plete	Total emerg	Var. feature
573	PI 279171			9	13	9	10.3	3	0	0	0	3	0	0	0	
574	PI 279156			51	67	29	49.0	63	1	9	10	15	7	19	26	tf
575	PI 279158			0	9	6	5.0	2	0	0	0	6	0	0	0	
576	PI 275421			21	23	12	18.6	11	1	1	2	8	3	8	11	tf
577	PI 279160			7	10	1	6.0	2	1	1	2	3	0	3	3	
578	PI 282183			11	15	2	9.3	9	1	0	1	3	0	1	1	
579	PI 279161			0	8	3	3.6	7	0	1	1	5	1	0	1	
580	PI 279169			0	8	1	3.0	3	1	0	1	2	0	0	0	
581	PI 279174			3	9	3	5.0	2	0	0	0	2	0	1	1	
582	PI 280700			4	5	2	3.6	3	0	1	1	3	0	1	1	
583	PI 279123			4	0	1	1.6	1	0	1	1	1	0	0	0	
584	PI 281758			7	2	1	3.3	2	0	1	1	4	0	0	0	
585	PI 281760			13	17	2	10.6	4	0	2	2	2	0	2	2	
586	PI 281844			3	2	2	2.3	2	1	0	1	2	0	0	0	
587	PI 281738			4	3	1	2.6	1	0	1	1	2	1	1	2	
588	PI 279124	Ceylon		1	2	7	3.3	1	0	0	0	1	0	0	0	
589	CI 4811			1	6	1	2.6	1	0	0	0	2	0	0	0	
590	PI 283686			1	0	2	1.0	1	0	0	0	2	0	0	0	
591	PI 279158			6	1	2	3.0	1	0	0	0	5	0	0	0	
592	CI 9353	Cuba	Fortuna	5	10	0	5.0	1	1	0	1	0	0	0	0	
593	PI 224900	Japan	Sensho	26	45	6	25.6	23	3	3	6	7	2	4	6	o
594	PI 183331	India		0	3	0	1.0	1	0	0	0	6	0	0	0	
595	PI 233066	Egypt	Yubani Pearl	3	6	2	3.6	3	0	0	0	2	0	0	0	
596	PI 280548			0	2	0	0.6	1	0	0	0	4	0	0	0	
597	PI 279158			19	17	0	12.0	8	2	1	3	3	0	0	0	
598	PI 180930	China	Ching Cheng	3	7	1	3.6	3	1	0	1	2	0	0	0	

Table 2 (cont.).

Var. no.	CI or PI no.	Country of Origin	Variety name	Free Choice experiment: Weevils counted on each variety: 3 days after inf.	6 days after inf.	9 days after inf.	avg. no. of weevils per var.	Free Choice experiment: Weevils emerged: Feeding damage	Incomplete	Complete	Total	Non choice exp.: Weevils emerged: Feeding damage	Incomplete	Complete	Total	Var. feature
599	PI 279122			0	11	1	4.0	1	0	0	0	3	0	0	0	
600	PI 277234			2	2	0	1.3	1	0	0	0	0	0	0	0	
601	PI 160988		Fei Lai Feng	5	5	2	4.0	1	0	0	0	5	0	0	0	
602	CI 9354	Cuba	Fortuna	2	0	0	0.6	0	0	1	1	0	0	0	0	
603	CI 9355	U.S.A. Lo.	LaCross x Zenith	18	27	33	26.0	21	13	9	22	14	5	5	10	eo
604	CI 9356	U.S.A. Lo.	250 129 x Fragant Fortuna	11	6	5	7.3	3	0	0	0	4	0	0	0	
605	CI 9357	U.S.A. Ark.	CI 8994 x S 426 A	13	9	7	9.6	6	1	1	2	5	1	0	1	
606	CI 9358	U.S.A. Ark.	CI 8994 x S 426 A	9	21	2	10.6	1	0	1	1	3	0	0	0	
607	CI 9359			4	5	2	3.6	1	1	0	1	1	1	0	1	
608	PI 160971	China	Yu Tao	2	1	1	1.6	2	0	0	0	1	0	0	0	
609	PI 160973	China	Hao Lo Hung	4	3	1	2.6	4	2	0	2	9	0	0	0	
610	PI 160974	China	Han Loh Hao	7	4	3	4.6	2	0	1	1	2	0	0	0	
611	PI 160982	China	Hwa Yang Tsao Ju	9	10	6	8.3	3	1	1	2	5	1	2	3	
612	PI 160986	China	Hwa Lo Hung	2	4	2	2.6	2	0	0	0	3	0	1	1	
613	CI 9360	U.S.A. Calif.	4218 x T P 49	6	7	10	7.6	1	0	0	0	4	0	0	0	
614	PI 279171			3	9	4	5.3	2	0	1	1	2	0	0	0	
615	PI 160797	China	Mei Kuei Huan	4	13	10	9.0	4	0	1	1	5	1	3	4	green
616	CI 9021	U.S.A. Tex.	Bruin Bee x ER	35	31	56	40.6	27	2	7	9	9	4	10	14	tf
617	PI 277252			3	3	8	4.6	1	0	2	2	2	0	3	3	
618	CI 9061	U.S.A. Ark.	Zenith x Nira	11	21	8	13.3	9	0	0	0	5	0	0	0	
619	PI 160961	China	Tai Tsu Chu Tao	0	7	0	2.3	0	0	2	2	3	0	0	0	
620	PI 160805	China	Chu Cheng	1	6	1	2.6	0	1	0	1	1	0	0	0	
621	CI 9125	U.S.A. Tex.	Bull Medium x Zenith	9	10	1	6.6	2	0	1	1	4	0	1	1	
622	PI 160812	China	Li Mu Y Oan	3	4	0	2.3	2	0	4	4	3	2	1	3	
623	PI 160814	China	Li Chuan Chiu	3	7	1	3.6	2	1	4	5	3	0	0	0	

Table 2 (cont.).

Var. no.	CI or PI no.	Country of Origin	Variety name	Free Choice experiment: Weevils counted on each variety: 3 days after inf.	6 days after inf.	9 days after inf.	avg. no. of weevils per var.	Free Choice experiment: Weevils emerged: Feed age	In-com-plete	Com-plete	Total emerg	Non choice exp.: Weevils emerged: Feed age	In-com-plete	Com-plete	Total emerg	Var. feature
624	CI 9066	U.S.A. Ark.	BR 41 x Akaho Sup BR	4	5	2	3.6	3	1	1	2	1	0	0	0	
625	CI 9128	U.S.A. Tex.	TP x Hill Medium	2	1	0	1.0	3	0	1	1	3	0	0	0	
626	PI 160816	China	Hwang Mu	2	5	6	4.3	3	1	1	2	3	0	0	0	
627	PI 160818	China	Nin Ming	3	3	4	3.3	2	0	0	0	1	0	0	0	
628	CI 9162	U.S.A. Lo.	78 3 12 x Bluebonnet	8	7	9	8.0	8	0	2	2	2	0	0	0	
629	CI 9164	U.S.A. Lo.	78 3 12 x 4 11 4 1 11	4	4	3	3.6	2	1	0	1	1	0	0	0	
630	PI 160819	China	Chiao Pa Tao Chih Shih Yjn Ti	9	7	8	8.0	5	1	0	1	3	0	0	0	
631	PI 160823	China	Tu Pien	3	6	3	4.0	4	0	0	0	4	0	1	1	green
632	CI 9166	U.S.A. Lo.	Rexoro Rogue	6	6	3	5.0	3	0	2	2	4	0	0	0	
633	PI 160824	China	Chien	12	11	0	7.6	9	0	0	0	3	0	0	0	green
634	PI 279119			5	8	1	4.6	2	0	0	0	2	0	0	0	
635	PI 277417			0	7	0	2.3	3	0	1	1	2	0	0	0	
636	PI 160825	China	Chuan	27	53	41	40.3	45	1	24	25	14	2	19	21	tf
637	CI 9168	U.S.A. Lo.	250 x Magnolia	20	31	29	26.6	30	1	7	8	12	2	5	7	so, tf
638	CI 9170	U.S.A. Lo.	4 11 8 14 x Bluebonnet	2	7	4	4.3	3	0	0	0	2	0	0	0	
639	CI 9171	U.S.A. Lo.	Bluebonnet selection	4	5	7	5.3	3	0	1	1	3	0	0	0	
640	PI 160827	China	Mei Suei Shuan	0	2	0	0.6	0	0	0	0	3	0	0	0	
641	CI 9173	U.S.A. Lo.	Magnolia x 4 11 1 8	1	1	2	1.3	1	0	0	0	3	0	0	0	
642	CI 9174	U.S.A. Lo.	4 11 1 8 x C 252	7	10	8	8.3	4	0	1	1	4	0	0	0	
643	CI 9179	U.S.A. Lo.	78 3 12 x T P 49	6	5	28	13.0	9	1	0	1	8	1	3	4	so
644	PI 160829	China	Mei Cheng Hsuan 1 Hao	1	1	1	1.0	2	0	0	0	1	0	0	0	
645	CI 9180	U.S.A. Lo.	15 16 Rexoro	2	6	12	6.6	5	0	0	0	4	0	0	0	
646	CI 9186	U.S.A. Ark.	R 7689 x T P x R SBR	3	4	2	3.0	2	0	0	0	5	0	0	0	
647	PI 160831	China	Hsuan 2 Hao	32	63	32	42.3	39	2	8	10	9	3	23	26	tf, green
648	PI 160833	China	Chung Hsuan	33	50	33	38.6	34	2	12	14	18	3	13	16	tf, green

Table 2 (cont.).

Var. no.	CI or PI no.	Country of Origin	Variety name	Free Choice experiment: Weevils counted on each variety: 3 days after inf.	6 days after inf.	9 days after inf.	avg. no. of weevils per var.	Free Choice exp.: Weevils emerged: Feed	In-dam-age	Con-com-plete	Con-plete	Total	No Choice exp.: Weevils emerged: Feed	In-dam-age	Con-com-plete	Con-plete	Total	Var. feature
649	CI 8353	China	Feh Fong Hoe	3	7	4	4.6	4	1	0	1	2	1	0	1			
650	CI 9187	U.S.A. Ark.	R 7689 x TP x R SBR	5	5	11	7.0	4	0	1	1	3	0	0	0			
651	PI 160834	China	Jen Ching	8	11	7	8.6	3	0	1	1	3	1	1	2			
652	CI 9199	U.S.A. Ark.	Nira 43	2	7	10	6.3	1	0	1	1	4	0	0	0			
653	PI 160835	China	Chung Yi	8	2	3	4.3	4	0	2	2	5	0	2	2			
654	PI 160857-1	China	Chung Ta 312 Hao x Binastion F 3	1	0	1	0.6	0	2	3	5	2	0	0	0			
655	PI 160861	China	Chung Ta 312 Hao x Binastion F 3	9	3	11	7.6	4	1	1	2	3	0	0	0			
656	PI 160863-1			10	15	22	15.6	12	1	9	10	5	0	9	9			tf
657	CI 9199	U.S.A. Ark.	TP x R SBR Rogue	15	13	14	14.0	6	0	1	1	3	0	1	1			
658	CI 9204	U.S.A. Tex.	Lady Wright Sel 31	11	12	28	17.0	19	7	5	12	8	4	1	5			so
659	CI 8354	China	Tak Si Chut	8	4	5	5.6	7	0	1	1	2	0	0	0			
660	CI 9207	U.S.A. Tex.	Caloro x BR	3	3	2	2.6	3	1	1	2	2	0	1	1			
661	CI 9361	U.S.A. Ark.	TP x Nagoro Sup. Blue Rosa	23	17	5	15.0	13	0	1	1	7	4	5	9			
662	PI 160706	China	Jung Shen Li	0	1	3	1.3	0	1	0	1	0	0	0	0			
663	PI 160764	China	San Ho Chin	12	16	2	10.0	1	0	1	1	3	0	1	1			
664	PI 160744	China	P 170	0	0	0	0.0	0	0	0	0	0	0	0	0			
665	PI 160577-A	China	Al Kwoh 4 Hao	2	4	3	3.0	2	0	2	2	4	1	2	3			
666	PI 160775	China	P 161	22	23	24	23.0	7	2	12	14	6	3	9	12			tf
667	PI 160772	China	P 155	0	0	0	0.0	0	0	0	0	0	0	0	0			
668	PI 160773	China		1	0	4	1.6	0	0	0	0	0	0	0	0			
669	PI 160675	China	Yui Hong Al Kwoh	2	3	4	3.0	2	0	0	0	1	0	0	0			

Table 2 (cont.).

Table 2 (cont.).

Var. no.	CI or PI no.	Country of Origin	Variety name	Free Choice experiment: Weevils counted on each variety: 3 days after inf.	6 days after inf.	9 days after inf.	avg. no. of weevils per var.	Free Choice experiment: Weevils emerged: Feed damage	In-complete	Com-plete	Total emerg	Non choice exp.: Weevils emerged: Feed damage	In-complete	Com-plete	Total emerg	Var. feature
670	PI 160677-1	China	Al Kwoh 4 Hao	2	2	0	1.3	1	0	0	0	3	0	1	1	
671	160769-2			9	13	12	11.3	10	2	5	7	4	0	11	11	tf
672	PI 160680	China	Hsung Tieng	5	9	6	6.6	2	0	0	0	7	0	0	0	
673	PI 160677-5	China	Ai Kwoh 4 Hao	4	5	13	7.3	3	0	1	1	4	0	0	0	
674	PI 160679	China	Hsung Tieng	3	3	0	2.0	1	0	0	0	3	0	3	3	
675	PI 160758	China	Tsao Ta Wam	15	23	7	15.0	4	0	2	2	4	0	4	4	tf
676	PI 160699	China	Tsao Sheng	2	4	1	2.3	0	0	3	3	3	0	3	3	
677	PI 160694	China	Tsi Shik Chin	46	55	53	51.3	44	2	34	36	16	1	23	24	tf
678	PI 160764	China	P 135	2	4	0	2.0	1	0	1	1	4	0	0	0	
679	PI 160726	China	Hsu 27	1	0	0	0.3	0	0	0	0	1	0	0	0	
680	PI 160771	China		0	2	0	0.6	2	0	0	0	3	0	0	0	
681	PI 160688	China	Hsiao Wu Tsu Tsi	1	9	12	7.3	3	0	1	1	3	1	1	2	
682	PI 160689	China	Leng Kwang	0	0	1	0.3	0	0	0	0	0	0	0	0	
683	PI 160730	China	Tsao Sheng Hsu	3	4	7	4.6	3	0	1	1	3	0	0	0	
684	PI 160683	China	Hsung Tieng 2 Hao	2	1	2	1.6	5	0	0	0	2	0	0	0	green
685	PI 160686	China	Hsung Tieng 2 Hao	16	8	45	23.0	21	0	3	3	8	3	4	7	tf
686	PI 160769-1	China	Wang Lin Chan 5 Hao	42	21	4	22.3	11	0	3	3	5	2	8	10	tf
687	PI 160691			8	10	0	6.0	4	0	1	1	3	0	0	0	
688	PI 160766	China	P 164	1	4	4	3.0	6	0	2	2	4	0	0	0	
689	PI 160752	China	Nan Ho Chin	4	10	6	6.6	3	0	2	2	6	0	0	0	
690	PI 160764-1			8	5	0	4.3	2	0	1	1	1	0	1	1	
691	PI 160754	China	1 19 22 Ta Chang	2	3	2	2.3	0	1	0	1	1	0	0	0	

Table 2 (cont.).

Var. no.	CI or PI no.	Country of Origin	Variety name	Free Choice experiment: Weevils counted on each variety: 3 days after inf.	6 days after inf.	9 days after inf.	avg. no. of weevils per var.	Free Choice experiment: Weevils emerged: Food damage	In-complete	Com-plete	Total emerg	Non choice exp.: Weevils emerged: Food damage	In-complete	Com-plete	Total emerg	Var. feature
692	PI 160764-3			10	4	3	5.6	1	0	0	0	2	0	1	1	green
693	PI 160767	China	P 168	0	1	1	0.6	0	0	1	1	4	0	0	0	
694	PI 160728	China	Tano Cheng Hau	7	6	6	6.3	4	2	12	14	4	1	0	1	
695	PI 160729	China	Tano Sheng Hau	5	4	11	6.6	1	1	2	3	2	0	0	0	
696	PI 160764-5			11	10	22	14.3	5	1	0	1	1	0	0	0	green
697	PI 160764-4			12	2	5	6.3	1	0	1	1	4	0	0	0	green
698	PI 160765	China	P 151	11	8	11	10.0	5	1	0	1	4	0	1	1	
699	PI 160677-3			1	1	3	1.6	1	0	1	1	3	0	1	1	
700	PI 160691	China	Hei Schwei	35	31	13	26.3	27	0	4	4	12	1	5	6	tf
701	PI 160757	China	Pai Mang Jh Pan	5	20	2	9.0	4	0	1	1	4	0	2	2	
702	CI 1299			6	3	0	3.0	1	0	2	2	2	1	4	5	
703	PI 225859	Japan	Norin 17	4	2	1	2.3	0	0	0	0	1	0	0	0	
704	PI 226186	Japan	Hokkoda	16	17	12	15.0	6	1	5	6	4	2	4	6	tf
705	PI 225893	Japan	Fifty 132	15	9	3	9.0	3	1	4	5	1	0	0	0	
706	PI 225918	Japan	Fukuoka I	0	2	2	1.3	0	0	1	1	1	0	0	0	
707	169245			2	2	2	2.0	1	0	2	2	2	7	5	12	fol
708	PI 162207	Korea	Gun Do	8	9	2	6.3	1	0	1	1	2	0	0	0	
709	CI 3874	Korea	Shiro Kyushiku Mochi No. 2	0	1	4	1.6	0	1	0	1	1	0	0	0	
710	PI 225866	Japan	Norin 24	2	1	3	2.0	1	0	0	0	0	0	0	0	
711	PI 223005	Japan	Shinriki Mochi	2	0	1	1.0	0	0	0	0	1	0	0	0	
712	CI 8858-1	Korea	Sanbaro	3	5	10	6.0	2	1	0	1	4	0	0	0	
713	PI 162179	Korea	Sul Do	11	11	11	11.0	5	1	3	4	1	0	2	2	

Table 2 (cont.).

Table 2 (cont.).

Var. no.	CI or PI no.	Country of Origin	Variety name	Free Choice experiment: Weevils counted on each variety: 3 days after inf.	6 days after inf.	9 days after inf.	avg. no. of weevils per var.	Free Choice experiment: Weevils emerged: Feed damage	In-complete	Com-plete	Total emerg	Non choice exp.: Weevils emerged: Feed damage	In-complete	Com-plete	Total emerg	Var. feature
714	PI 226134	Korea	Rikuto Norim 12	0	10	2	4.0	3	1	3	4	4	1	2	3	
715	PI 160644	China		21	12	11	14.6	6	0	2	2	2	0	1	1	
716	PI 160645	China	Pao Tswen	11	11	4	8.6	7	0	2	2	1	0	0	0	
717	PI 160700	China	Ta Tsao	3	9	3	5.0	6	0	3	3	4	0	1	1	
718	PI 160701	China	Ao Chiu 2 Hao	4	9	2	5.0	5	0	3	3	5	0	0	0	
719	CI 9364	U.S.A. Tex.	Bluebonnet 50 x B 455 A1	1	4	4	3.0	0	0	0	0	2	0	0	0	
720	PI 160709	China	Kung Shen Li	5	2	0	2.3	1	0	0	0	3	0	0	0	
721	PI 160646	China	San Pao	5	12	22	13.0	3	0	6	6	2	0	1	1	
722	PI 160640	China		2	2	1	1.6	1	0	1	1	2	0	0	0	
723	PI 160635	China	1609 Hao	17	15	21	17.6	11	2	4	6	4	1	1	2	tf
724	PI 160642	China		6	5	4	5.0	4	0	1	1	3	0	0	0	
725	PI 160641	China		0	0	0	0.0	0	0	0	0	4	0	0	0	
726	PI 160639	China		3	2	8	4.3	5	1	1	2	2	0	0	0	
727	PI 160638	China		1	2	1	1.3	0	0	2	2	6	1	0	1	
728	PI 160633	China	Tsao Keng 173	5	3	0	2.6	3	0	0	0	1	0	0	0	
729	PI 160637	China	San Pai Ku	7	5	0	4.0	4	0	0	0	3	0	0	0	
730	PI 160630	China	Yi Chun Pai Ku	4	4	0	2.6	2	0	0	0	8	1	0	1	
731	PI 160650	China	Shih Chieh	21	18	16	18.3	12	1	5	6	5	0	6	6	tf
732	PI 160653	China	Jh Pen Shih Ming	45	43	58	48.6	62	1	35	36	10	3	18	21	tf
733	PI 160629	China	Ta Mao Hsiang	2	3	0	1.6	3	0	1	1	3	0	0	0	green
734	PI 160654	China	Tai Lung Ping Wei Ju	3	4	8	5.0	1	0	2	2	5	0	0	0	green
735	PI 160628	China	Chang Mang 7 Hao	0	0	0	0.0	0	0	0	0	0	0	0	0	green
736	PI 160711	China	Chiang Li 3 Hao	9	5	8	7.3	3	0	3	3	1	0	0	0	green
737	PI 160642	China	Ma Chan	2	4	8	4.6	3	0	1	1	2	0	0	0	
738	PI 160643	China	Pai Hua Ku Er Tsi	0	1	2	1.0	0	0	0	0	0	0	0	0	green
739	PI 160712	China	Chi Shen Li	12	6	24	14.0	3	0	1	1	1	0	0	0	green

Table 2 (cont.).

Var. no.	CI or PI no.	Country of Origin	Variety name	Free Choice experiment: Weevils counted on each variety: 3 days after inf.	6 days after inf.	9 days after inf.	avg. no. of weevils per var.	Free Choice experiment: Weevils emerged: Feed Age	Incomplete	Complete	Total emerg	No choice exp.: Weevils emerged: Feed Age	Incomplete	Complete	Total emerg	Var. feature
780	PI 160600	China	Hsia Jeh Chiang Hsien	1	1	3	1.6	2	0	1	1	4	0	0	0	green
781	PI 160599	China	Pei Jen Hsien	1	3	4	2.6	2	0	0	0	0	0	0	0	green
782	PI 160598	China	Tsao Tao	5	3	1	3.0	3	0	0	0	4	0	0	0	
783	PI 160591	China	Yang Ku Tai	6	7	1	4.6	5	0	0	0	5	0	0	0	
784	PI 160590	China	Ai Tai Ju	3	8	1	4.0	6	0	0	0	7	0	0	0	
785	PI 160589	China	Hung Soh	3	1	1	1.6	1	0	0	0	1	0	0	0	
786	PI 160805	China	Kan Chang Tao	4	1	1	2.0	2	0	1	1	2	0	0	0	green
787	PI 160588	China	Man Tao	7	2	1	3.3	2	0	0	0	4	0	0	0	
788	PI 160587	China	Hung Mi Ho	10	6	15	10.3	5	0	3	3	4	0	0	0	
789	PI 160586	China	Kuan Yen Chun	2	0	1	1.0	0	0	0	0	2	0	0	0	
790	PI 160613	China	Kun Chiao Ju Haino Li	1	1	1	1.0	2	0	0	0	3	0	0	0	
791	PI 160670	China	Kao Tao	6	2	3	3.6	1	0	0	0	5	0	0	0	
792	PI 160614	China	Sen Ta Shang Chin	8	3	6	5.6	2	0	0	0	5	0	0	0	green
793	PI 160620	China	Ti Ho	11	2	7	6.6	3	0	0	0	8	0	0	0	
794	PI 160585	China	Man Tao	9	2	6	5.6	7	0	0	0	3	0	0	0	
795	PI 160657	China	Hsing Hung Ju	1	2	1	1.3	0	0	0	0	2	0	0	0	
796	PI 160558	China	Fu San L Ho	4	3	4	3.6	2	0	0	0	2	0	0	0	
797	CI 5662-1	Korea	Kinsi Early No. 70	2	4	1	2.3	2	0	0	0	2	0	0	0	
798	PI 160562	China	Hsu Pu Chih	1	5	3	3.0	0	0	0	0	0	0	0	0	
799	PI 160557	China	Tuan Tai C	6	2	2	3.3	0	0	0	0	4	0	0	0	
800	PI 160584	China	Hsiao Hei Tao	8	7	5	6.6	5	0	0	0	4	0	0	0	
801	PI 160679	China	Ta Chu	12	11	3	8.6	3	0	1	1	0	0	0	0	
802	PI 160555	China	Pei	3	2	2	2.3	4	0	1	1	5	0	0	0	
803	PI 160554	China	Da Keng Tao	2	11	4	5.6	1	0	0	0	5	1	0	1	
804	PI 160550	China	Hsiang Chiao Li Tao	6	2	7	5.0	1	0	1	1	0	0	0	0	
805	PI 160583	China	Hsiao Tung Tsao Sheng	0	1	1	0.6	0	0	0	0	2	0	0	0	

Table 2 (cont.).

Table 2 (cont.).

Var. no.	CI or PI no.	Country of Origin	Variety name	Free Choice experiment: Weevils counted on each variety: 3 days after inf.	6 days after inf.	9 days after inf.	avg. no. of weevils per var.	Free Choice experiment: Weevils emerged: Feed dam-age	In-com-plete	Com-plete	Total emerg	Non choice exp.: Weevils emerged: Feed dam-age	In-com-plete	Com-plete	Total emerg	Var. feature
766	PI 160572	China	Iu Ju	0	0	2	0.6	1	0	1	1	6	1	0	1	
767	PI 160543	China	Hsiao Wu Tsu Tsi	5	3	3	3.6	4	0	0	0	3	0	1	1	green
768	PI 160573	China	Hung Mi Ho	17	2	2	7.0	5	0	0	0	4	0	0	0	
769	PI 160518	China	Huang Mu	12	7	10	9.6	4	0	0	0	5	0	0	0	
770	PI 160536	China	Shih Shang Ju	6	11	3	6.6	4	0	0	0	4	0	0	0	
771	PI 160533-1	China	Wan Mi Hsiang	13	40	20	24.3	4	0	0	0	5	1	1	2	
772	PI 160533	China	Wan Mi Hsiang	11	26	8	15.0	6	0	0	0	2	0	1	1	
773	PI 160526	China	Chiu Chiu Ku	12	7	2	7.0	1	0	0	0	2	0	0	0	
774	PI 160523	China	Hsiang Hsiang Ju	9	5	12	8.6	2	0	0	0	4	0	1	1	
775	PI 160522	China	Pai Sze Ju	20	4	5	9.6	5	0	0	0	3	0	0	0	
776	PI 160518	China	Hsien Chan	8	8	5	7.0	5	0	0	0	5	0	0	0	
777	PI 160517	China	Pei Chiao Ju	5	1	0	2.0	1	0	0	0	1	0	0	0	
778	PI 160516	China	Hei Chiao Ju	42	32	33	32.3	13	0	0	0	6	1	7	8	tf
779	PI 160563	China	Chin Ta 1 386	2	3	3	2.6	1	0	0	0	0	0	0	0	
780	PI 160582	China	Hei Tu 4 Hao	3	8	6	5.6	2	0	0	0	3	0	0	0	
781	PI 160731	China	Hsiao Sheng Hsu	12	5	19	12.0	4	1	0	1	7	0	0	0	
782	PI 160576	China	Hung Hsieh Ju	17	12	13	14.0	5	0	1	1	5	0	1	1	
783	PI 160625	China	Hsu Lei	13	22	17	17.3	3	0	0	0	2	1	0	1	
784	PI 160661	China	8 26 82 Ping Shuo	5	4	1	3.3	1	0	0	0	0	0	0	0	
785	PI 160505	China	Pan Tao	4	13	2	6.3	2	0	0	0	5	1	0	1	
786	PI 160621	China	Ti Ku	15	12	4	10.3	2	0	0	0	5	0	0	0	
787	PI 160598	China	Chen Wei Hua Lo Tsao Kuo	11	12	3	8.6	2	0	0	0	4	0	0	0	
788	PI 160477	China	Ta Nan Haisa	13	8	5	8.6	2	0	0	0	5	0	0	0	

Table 2 (cont.).

Var. no.	CI or PI no.	Country of origin	Variety name	Free Choice experiment: Weevils counted on each variety, 3 days after inf.	6 days after inf.	9 days after inf.	avg. no. of weevils per var.	Weevils counted: Feeding damage	Oviposition	Copulation	Total	No choice exp.: Weevils counted: Feeding damage	Oviposition	Copulation	Total	Var. Notice
789	PI 160389	China	Chieh Cheng Hsin Hao	3	3	0	2.0	1	0	0	0	4	0	0	0	
790	PI 160435	China	Kin Chan	3	2	0	1.6	4	0	0	0	4	0	0	0	
791	PI 160436	China	Kan Chan	8	9	7	8.0	3	0	0	0	3	0	1	1	
792	PI 160396	China	Chi Pao Yin	3	10	6	6.3	1	0	0	0	4	1	1	2	
793	PI 160464	China	Lei Tai Chan	3	3	4	3.3	2	0	0	0	2	0	0	0	
794	PI 160395	China	Fan Ho Ku	10	19	5	11.3	6	0	0	0	4	1	2	3	
795	PI 160462	China	Yen Hsia Tsang	10	7	8	8.3	5	0	0	0	3	0	0	0	
796	PI 160392	China	Yeh Nan Chan	16	3	6	8.3	2	1	0	1	3	0	0	0	
797	PI 160418	China	Kai Jen Sien	6	4	5	5.0	1	0	1	1	1	0	0	0	
798	PI 16392		Pei Jen Sien	14	10	4	9.3	4	0	0	0	5	0	0	0	
799	PI 160417	China	Hsiang Tao	2	1	3	2.0	0	0	0	0	0	0	0	0	
800	PI 160391	China	Tung Wan Pai	5	4	2	3.6	1	0	0	0	2	0	0	0	
801	PI 160438	China	Yin Chan	6	5	4	5.0	6	0	0	0	3	0	0	0	
802	PI 160439	China	Ku Chan Tsao Ku	3	4	2	3.0	3	0	0	0	2	0	0	0	
803	PI 160422	China	Pi Ho Ju	6	12	9	9.0	3	0	0	0	4	0	0	0	
804	PI 160403	China		11	6	2	6.3	2	0	0	0	4	0	1	1	
805	PI 160423	China	Ti Ho Pang	10	4	4	6.0	1	0	0	0	3	0	0	0	
806	PI 160406	China	Yu Mei	9	3	13	8.3	2	0	0	0	3	0	0	0	
807	PI 160716	China	Hsien Li 21	7	2	1	3.3	1	1	0	1	2	0	0	0	
808	PI 160713	China	Nan Hsiang Hsien Li	24	13	5	14.0	4	0	0	0	3	0	1	1	
809	CI 9335	China	Chekiang No. 9	8	1	0	3.0	1	0	0	0	2	0	0	0	Pod
810	PI 160410	China	Yeh Tao	17	33	11	20.3	3	0	0	0	15	0	0	0	
811	PI 160414	China	Hsiao Hsing Pa Tao	7	5	4	5.3	4	0	0	0	4	0	0	0	
812	CI 9334	China	Chekiang No. 3	11	8	20	13.0	4	0	0	0	6	0	0	0	
813	PI 160413	China	Chang Te #58	10	9	10	9.6	5	0	0	0	4	0	0	0	
814	CI 9333	China	Rusty Lace	2	4	3	3.0	0	0	0	0	1	0	0	0	green

Table 2 (cont.).

Var. no.	CI or PI no.	Country of Origin	Variety name	Free Choice experiment: Weevils counted on each variety: 3 days after inf.	6 days after inf.	9 days after inf.	avg. no. of weevils per var.	Free Choice experiment: Weevils emerged: Feed damage	In-complete	Com-plete	Total emerg	Non choice exp.: Weevils emerged: Feed damage	In-complete	Com-plete	Total emerg	Var. feature
815	PI 160412-1	China	Yen Piao Hsien	20	5	2	9.0	1	1	1	2	5	0	0	0	
816	PI 160411	China	Tsoh Shan Kwoh	7	8	5	6.6	3	0	0	0	2	0	0	0	
817	CI 8332	China	Victory Hsien	13	5	4	7.3	3	0	0	0	7	0	0	0	
818	CI 8330	China		41	70	52	54.3	18	0	1	1	27	8	16	24	tf
819	CI 8328	China		3	3	1	2.3	0	0	1	1	1	0	0	0	
820	PI 160408	China	Chi Chwa Hsien	6	1	0	2.3	0	0	0	0	2	0	0	0	
821	CI 8012			12	11	0	7.6	5	0	0	0	7	1	0	1	
822	PI 160407	China	Chiu Shi Tsi	7	2	0	3.0	2	0	0	0	3	0	0	0	
823	PI 160405	China	Li Shi Tsi	8	10	2	6.6	2	0	0	0	1	0	0	0	
824	PI 160410	China	Po Yi Piao	12	9	10	10.3	4	0	0	0	5	0	1	1	
825	CI 7811			8	5	2	5.0	2	0	0	0	5	0	0	0	
826	CI 7781	China		5	8	3	5.3	2	0	0	0	4	0	0	0	
827	PI 160405	China	San Shi Tsi	13	4	2	6.3	3	0	0	0	1	0	0	0	
828	CI 7775	China		25	7	6	12.6	5	0	0	0	4	0	2	2	
829	PI 160424	China	Pai Hau	8	1	1	3.3	2	0	0	0	2	0	1	1	
830	CI 7392	China	Keng Zai Zo	5	3	3	3.6	5	0	0	0	5	0	0	0	
831	PI 160404	China	Tsan Tao Pai	7	20	5	10.6	6	0	1	1	2	0	0	0	
832	CI 7389	China	Tai Yip Zim	4	5	2	3.6	0	0	0	0	1	0	0	0	
833	CI 7388	China	Ngan Zim	9	7	3	6.3	3	0	0	0	0	0	0	0	
834	PI 160403	China	Choh Chang 303 Hao	8	8	1	5.6	5	0	0	0	4	0	0	0	
835	CI 7385			4	7	0	3.6	4	0	0	0	8	0	0	0	
836	PI 160402	China	Choh Chang Chia Hao	2	5	0	2.3	1	0	0	0	0	0	0	0	
837	CI 7384			12	3	2	5.6	3	0	0	0	4	0	0	0	
838	PI 160409	China	Tsao Hsu Ching	10	9	7	8.6	0	0	1	1	1	0	0	0	
839	PI 160504	China	Jin Pen Chin Chih Fao	13	11	2	8.6	2	0	0	0	4	0	5	5	

Table 2 (cont.).

Var. no.	CI nr PI no.	Country of Origin	Variety name	Free Choice experiment: Weevils counted on each variety: 3 days after inf.	6 days after inf.	9 days after inf.	avg. no. of weevils per var.	Free Choice experiment: Weevils emerged: Feed age	Feed plate	Con- plate	Con- plate	Total emerged	No choice exp.: Weevils emerged: Feed age	Feed plate	Con- plate	Total emerged	Var. factor
650	PI 160514	China	Caing Ii y 316	7	17	2	8.6	2	0	0	0	2	0	0	0		
651	PI 160110	China	Cheung Chen Shen Pi 1 Hao	5	7	4	5.3	2	1	0	1	2	0	0	0		
652	PI 160463	China	Ching Kang Cha	14	13	16	14.3	3	0	0	0	3	0	1	1		
653	PI 160662	China	Ee Chi Tsao	4	1	1	2.0	3	0	0	0	3	0	1	1		
654	PI 160461	China	Yang Mei Tao	3	11	4	6.0	2	0	2	2	2	0	0	0		
655	PI 160660	China	Chan Mao Tau	14	12	3	9.6	3	1	0	1	3	0	0	0		
656	PI 160630	China	Ning Hsia Tao	55	75	72	67.1	37	2	4	6	28	1	9	10		11
657	PI 160556	China	Shiyei Tao	4	9	6	6.3	3	1	1	2	3	0	0	0		
658	PI 160665	China	Haiung Tao	11	2	1	4.6	6	0	1	1	2	0	0	0		
659	PI 160454	China	Ee Chao Huang	4	5	4	4.3	2	0	0	0	3	0	0	0		
660	PI 160652	China	Yin Chen	5	6	1	4.0	3	1	0	1	5	1	0	1		
661	PI 160462	China	Cheng Chiao	3	4	2	3.0	0	0	0	0	1	0	1	1		
662	PI 160650	China	Hang Chan	10	12	6	9.3	4	0	0	0	2	0	0	0		
663	PI 160649	China	Ba Chan	65	50	56	57.0	34	0	7	7	30	0	10	10		14
664	PI 160648	China	Cang Shuei Fu Cinh	7	5	11	6.0	2	0	1	1	3	0	0	0		
665	PI 160647	China	Ying Mao Pai	9	6	4	6.3	3	0	0	0	2	0	0	0		
666	PI 160644	China	Mao Heiung Ku	7	4	3	4.6	2	0	0	0	1	0	0	0		
667	PI 160643	China	Hing Pau Chu	18	31	30	25.6	6	0	0	0	3	0	0	0		
668	PI 160641	China	Chang Hang Fu	17	12	5	11.3	4	0	0	0	4	0	0	0		
669	PI 160634	China	Ta Yeh Tai	3	5	3	3.6	1	0	0	0	2	0	0	0		
670	PI 160638	China	Yeah Bash Huang	12	25	4	10.3	3	0	0	0	2	0	0	0		
671	PI 160639	China	Chen Ku	10	7	4	7.0	2	0	0	0	6	0	1	1		
672	PI 160633	China	Yai Ji Tsao	1	4	3	2.6	0	0	0	0	2	0	0	0		
673	PI 160632	China	Pai Chin Tai	7	12	3	7.3	4	0	1	1	3	0	1	1		
674	PI 160631	China	Pen Tsao	18	15	10	14.0	7	1	0	1	3	0	0	0		
675	PI 160726	China	F 169	2	1	0	1.0	0	0	0	0	0	0	0	0		

Table 2 (cont.).

Var. no.	CI or PI no.	Country of Origin	Variety name	Free Choice experiment: Weevils counted on each variety: 3 days after inf.	6 days after inf.	9 days after inf.	avg. no. of weevils per var.	Free Choice experiment: Weevils emerged: Feed dam age	In-com-plete	Com-plete	Total emerg	Non choice exp.: Weevils emerged: Feed dam age	In-com-plete	Com-plete	Total emerg	Var. feature
866	PI 160630	China	Tung Chan	5	2	2	3.0	0	0	0	0	2	0	0	0	
867	PI 160725	China	Hsu 3 Hao	4	3	1	2.6	1	0	0	0	1	0	0	0	
869	PI 160513	China	Chinese Originaro	9	9	1	6.3	1	0	0	0	3	0	1	1	
869	PI 160466	China	Ta Li Ju	5	6	2	4.3	2	0	0	0	3	1	0	1	
870	PI 160511	China	Tai Nung 4 Hao	6	7	5	6.0	2	1	1	2	4	0	0	0	
871	PI 160510	China	Chao Hsien Keng	8	5	9	7.3	1	0	0	0	0	0	0	0	
872	PI 160509	China	Wan Sheng Shen Li	7	8	3	6.0	3	0	0	0	0	0	0	0	
873	PI 160508	China	Tsi Ta Hei	14	15	11	13.3	5	0	0	0	3	0	0	0	
874	PI 160505	China	Kwan Chu Chih 15 Hao	5	3	2	3.3	3	0	0	0	2	0	0	0	
875	PI 160503	China	Hung Lin 2 Hao	23	37	19	26.3	14	0	0	0	5	0	2	2	tf
876	PI 160500	China	Hei Pen	4	6	2	4.0	1	0	0	0	2	0	0	0	
877	PI 160499	China	Sec No. 221A83 8	4	5	0	3.0	3	0	0	0	3	0	0	0	
878	PI 160497	China	Morratilli	7	3	3	4.3	2	0	0	0	2	0	0	0	
879	PI 160494	China	Aconlea	11	11	8	10.0	5	0	0	0	5	0	1	1	
880	PI 160495	China	Leucirro	13	7	6	8.6	5	1	0	1	3	0	1	1	
881	PI 160493	China	Chiu Shih Tsao Teo	3	4	1	2.6	0	0	0	0	0	0	0	0	
882	PI 160491	China	Pien Chang Ying Teo	15	16	14	15.0	5	0	0	0	2	0	0	0	
883	PI 160489	China	Yi Shih Hsing	17	11	1	9.6	8	0	0	0	5	1	0	1	
884	PI 160487	China	Chih Chang 46 Hao	10	32	32	24.6	6	0	0	0	7	2	3	5	
885	PI 160481	China	Ahlay C 408 O S H	9	5	4	6.0	2	0	0	0	3	0	0	0	
886	PI 160478	China	Aconlea	3	7	2	4.0	3	0	0	0	2	0	0	0	
887	PI 160476	China	Kentucky Sr 3	10	1	5	5.3	2	0	0	0	3	0	1	1	
888	PI 160475	China	F 467	5	5	2	4.0	2	0	0	0	6	0	1	1	
889	PI 160473	China	3614 K Ashan	15	3	13	10.3	4	0	0	0	4	0	1	1	
890	PI 160472	China	A 33 K Aasav	12	3	3	6.0	2	0	0	0	1	0	0	0	
891	PI 160469	China	No. 202 Tsung	12	19	2	11.0	8	0	1	1	2	0	0	0	

Table 2 (cont.).

Var. no.	CI or PI no.	Country of Origin	Variety name	Free choice exp.: Weevils counted on each variety, 3 days after inf.	6 days after inf.	9 days after inf.	avg. no. of weevils per var.	Weevils emerged: Feeding damage	In-complete	Complete	Total	No choice exp.: Weevils emerged: Feeding damage	In-complete	Complete	Total	Ver. feature
891	PI 160409	China	No. 592 Fuong	12	10	2	11.0	3	0	1	1	2	0	0	0	
892	PI 160467	China	Nulliak Saefu	11	10	8	9.6	3	0	0	0	2	0	0	0	
893	PI 160520	China	Lao Shu Ya	11	3	3	5.6	2	0	0	0	5	0	0	0	
894	PI 160537	China	Chao Yau Chan	9	3	2	4.6	3	0	0	0	1	0	0	0	
895	PI 160578	China	Pai Fu 7 Hao	11	4	13	9.3	2	1	0	1	3	0	0	0	Aroma
896	CI 7383	China	Ying Chen Zin	14	9	1	8.0	3	0	0	0	5	0	0	0	
897	CI 7375	China	Tse Guen Zin	22	11	11	14.6	6	0	0	0	8	0	1	1	
898	CI 7370	China	Shan Gin	3	10	6	6.3	11	0	0	0	5	0	0	0	
899	CI 7367	China	Lok Cheung Pan Woo	6	16	9	10.3	4	0	0	0	3	0	0	0	
900	CI 7365	China	Kai War Por	5	12	4	7.0	2	0	0	0	5	0	0	0	
901	CI 7363	China	Pooh Pee Book	3	5	1	3.0	1	1	0	1	3	0	0	0	
902	CI 7129	China	Shin Pa	23	15	12	16.6	12	1	0	1	10	0	1	1	Ef
903	CI 7109	China		7	13	6	8.6	4	0	0	0	3	0	0	0	
904	CI 7104	China	Chin Chow	5	4	0	3.0	0	0	0	0	2	0	0	0	
905	CI 7103	China	Sio Ting	3	3	1	2.3	0	0	0	0	0	0	0	0	
906	CI 7102	China	Chu Chow	2	3	8	4.3	1	0	0	0	0	0	0	0	
907	CI 7095	China	Asiwot	5	3	2	3.3	3	0	0	0	5	0	0	0	
908	CI 7092	China	Chu Chow	5	3	3	3.6	2	0	0	0	6	0	0	0	
909	CI 7076	China		4	5	1	3.3	2	0	0	0	3	0	0	0	
910	CI 7073	China	Ting Chang	10	17	8	11.6	4	0	0	0	4	0	0	0	
911	CI 7071	China		5	1	5	3.6	1	0	0	0	2	0	0	0	
912	CI 7068	China	Chung Chow	1	2	0	1.0	2	0	0	0	3	0	0	0	
913	CI 7051	China		5	4	3	4.0	5	0	0	0	4	0	0	0	
914	CI 7025	China		7	9	3	6.3	3	0	0	0	3	0	0	0	
915	CI 7021	China	Hsiushi No. 50	4	5	9	6.0	2	0	0	0	4	0	0	0	
916	CI 6125-1	China		6	8	0	4.6	1	0	0	0	0	0	0	0	

Table 2 (cont.).

Var. no.	CI or PI no.	Country of Origin	Variety name	Free Choice experiment: Weevils counted on each variety: 3 days after inf.	6 days after inf.	9 days after inf.	avg. no. of weevils per var.	Free Choice experiment: Weevils emerged: Feed damage	In-complete	Com-plete	Total emerg	Non choice exp.: Weevils emerged: Feed damage	In-complete	Com-plete	Total emerg	Var. feature
917	CI 5581	China		5	10	7	7.3	4	0	0	0	5	0	1	1	
918	CI 5359	China		3	15	8	8.6	6	0	0	0	2	0	0	0	
919	PI 160515	China	Yun Isi Wu	4	6	1	3.6	3	0	0	0	2	0	0	0	
920	CI 5310	China		4	7	8	6.3	1	0	0	0	4	0	0	0	
921	PI 298542	Hungary		10	8	3	7.0	1	0	0	0	3	0	0	0	
922	PI 251837	Japan		11	2	3	5.3	2	1	0	1	4	0	0	0	
923	PI 291648	Japan		4	6	3	4.3	4	0	0	0	2	0	0	0	
924	PI 167092	Japan		6	4	3	4.3	1	0	1	1	3	0	0	0	
925	CI 0638	Korea	Chong Kue Tae Pyang	2	12	9	7.6	1	1	0	1	7	0	1	1	o
926	CI 8654-1	Korea		2	5	7	4.6	5	1	0	1	5	0	0	0	
927	PI 611693		Hill Sel. x (Fp x R - SRR)	15	4	5	8.0	1	0	0	0	2	0	0	0	
928	PI 291651	Japan		26	35	42	34.3	16	2	1	3	13	5	0	5	o
929	PI 248168	Italy		7	6	6	6.3	4	0	0	0	5	0	0	0	
930	PI 226177	Japan	Kuhei	11	32	26	23.0	14	1	1	2	8	4	1	5	o
931	PI 245929	Japan	Tozo Mochi	5	25	13	14.3	5	0	0	0	5	0	1	1	so
932	PI 245518	Italy		9	10	10	9.6	5	1	0	1	4	0	2	2	
933	PI 280080	Japan		8	3	7	6.0	2	0	0	0	5	0	0	0	
934	PI 229174	Japan	Hamaze	2	9	6	5.6	2	0	0	0	1	0	0	0	
935	PI 224699	Japan	Sekiyama	7	11	12	10.0	7	1	0	1	2	0	0	0	
936	PI 274695	Korea		4	5	3	4.0	3	0	0	0	2	0	0	0	
937	PI 291665	Japan		23	42	36	33.6	22	0	0	0	19	10	9	19	o
938	PI 224322	Japan	Hayama	8	17	11	12.0	4	0	0	0	7	1	1	2	
939	PI 248531	India		3	9	9	7.0	3	0	0	0	7	0	0	0	
940	PI 291630	Japan		7	4	4	5.0	1	0	0	0	2	0	0	0	
941	PI 226427	Japan	Kamairazu	13	17	25	18.3	5	0	2	2	5	0	3	3	

Table 2 (cont.).

Var. no.	CI or PI no.	Country of Origin	Variety name	Free choice: Weevils counted on each variety, 3 days after inf.	6 days after inf.	9 days after inf.	avg. no. of weevils per var.	Weevils emerged: Feeding damage	Incomplete	Complete	Total	Non choice exp. Weevils emerged: Feeding damage	Incomplete	Complete	Total	Var. features
942	PI 226616	Japan	Toyonishiki	10	4	12	8.6	5	0	0	0	5	0	0	0	
943	PI 291050	Japan		1	5	5	3.6	3	0	0	0	6	0	0	0	
944	PI 226603	Japan	Okuto Kikou	24	16	9	15.3	5	0	0	0	5	1	3	4	
945	PI 224293	Japan	Nase Akisku 3	17	14	8	13.0	4	2	3	5	4	1	4	5	
946	PI 081071	Japan		8	12	9	9.6	0	0	0	0	2	0	0	0	
947	PI 167165	Korea	Nam San	15	23	11	16.6	7	1	1	2	7	2	2	4	
948	PI 220179	Japan	Nakin 9	15	13	22	16.6	6	0	1	1	6	2	0	2	
949	PI 226500	Japan		2	10	6	6.0	2	0	0	0	2	0	0	0	
950	PI 224500	Japan		7	11	7	8.3	3	0	0	0	2	0	0	0	
951	PI 201013	Japan		7	21	8	12.0	2	0	0	0	1	0	0	0	
952	PI 231607	Japan		42	46	30	39.3	31	1	1	2	15	5	5	10	o
953	PI 231646	Japan		3	3	11	5.6	1	0	0	0	2	0	0	0	
954	*	Japan		10	9	8	8.3	3	0	1	1	3	0	1	1	
955	PI 226884	Japan	Ohba M 11 130	17	7	13	12.3	3	1	1	2	4	0	1	1	
956	PI 226172	Japan	Keiyo Kochi	50	55	52	52.3	45	0	0	0	11	7	4	11	o
957	PI 246520	Italy		4	6	7	5.6	1	0	0	0	3	0	0	0	
958	PI 226925	Japan	Yono 4	6	12	14	10.6	5	0	3	3	6	0	1	1	mo
959	PI 226927	Japan	Koyokuhi	10	11	4	8.3	4	1	0	1	4	0	1	1	
960	CI 8854	Korea	Joasho Tsorayi	32	17	39	29.3	26	2	3	5	13	10	4	14	o
961	PI 226430	Japan		31	13	14	19.3	2	0	0	0	5	0	0	0	
962	PI 226758	Japan		44	45	43	44.0	24	1	1	2	10	6	10	16	o
963	PI 400045	Italy		6	6	9	7.0	2	0	0	0	4	0	0	0	
964	PI 268319	Italy		11	7	13	10.3	1	0	0	0	0	0	0	0	std
965	PI 226823	Japan	Nakayama 11	22	23	35	26.6	11	0	3	3	10	0	1	1	[illegible]

*Variety was had (ler no. 7?? at Stuttgart in 1964 and the 1962 U.C. test no. 601573

Table 2 (cont.).

Var. no.	CI or PI no.	Country of Origin	Variety name	Free Choice experiment: Weevils counted on each variety: 3 days after inf.	6 days after inf.	9 days after inf.	avg. no. of weevils per var.	Free Choice experiment: Weevils emerged: Feed age	In-dam-com-plete	Com-plete	Total emerg	Non choice exp.: Weevils emerged: Feed age	In-dam-com-plete	Com-plete	Total emerg	Var. feature
966	CI 8678	Korea	Gaisen No. 9014	11	12	6	9.6	7	0	1	1	3	0	0	0	
967	PI 224798	Japan	Benisengoku	4	1	9	4.6	0	0	0	0	0	0	0	0	
968	PI 224083	Japan		17	13	16	15.3	8	0	1	1	7	0	0	0	
969	CI 9599		Gulf rose x LaCrosse	12	3	8	7.6	1	0	2	2	3	0	0	0	
970	PI 226198	Japan	Rikuto Shirohige	41	33	29	34.3	28	0	0	0	19	5	13	18	o
971	CI 9569			8	8	5	7.0	1	0	0	0	1	0	0	0	
972	PI 274473	Korea		14	2	8	8.0	5	0	0	0	3	0	0	0	
973	PI 162293	Korea		6	3	3	4.0	0	0	0	0	2	0	0	0	
974	PI 203095	Japan	Rikuto Toukai Mochi No. 27	23	35	43	33.6	23	1	0	1	11	4	1	5	o
975	PI 224809	Japan	Ginbozu Banzei	17	7	16	13.3	0	0	2	2	5	0	1	1	Fd
976	PI 224891	Japan	Rikuto Nori 24	18	24	15	19.0	4	0	1	1	6	2	0	2	
977	PI 291647	Japan		13	9	7	9.6	2	0	0	0	3	0	0	0	
978	PI 300681	Japan		6	6	4	5.3	2	0	0	0	0	0	0	0	
979	PI 224806	Japan	Tusaku Shirazu Sai 1	7	1	5	4.3	2	0	0	0	2	0	0	0	
980	PI 224895	Japan	San In 17	14	14	9	12.3	5	0	1	1	4	0	0	0	
981	CI 8697	Korea	Kinza	34	46	36	38.6	33	0	4	4	24	6	6	12	o
982	CI 8507	Korea	Igushi Mochi	18	25	18	20.3	10	0	0	0	9	2	0	2	so
983	PI 274492	Korea		9	5	11	8.3	4	0	0	0	5	0	0	0	
984	PI 224907	Japan	Shinono 3	5	6	27	12.6	5	0	0	0	4	2	1	3	
985	CI 9540		Saturn	9	5	4	6.0	2	0	0	0	1	0	0	0	
986	PI 280583	Japan		6	1	2	3.0	0	0	0	0	0	0	0	0	
987	CI 9549	U.S.A.	Ark Rose x Blue-Bonnet 50	18	21	30	23.0	17	0	1	1	17	0	0	0	so
988	PI 291040	Japan		7	2	2	3.6	1	0	0	0	2	0	0	0	
989	PI 226950	Japan	Higiwaka 5	15	6	12	11.0	3	0	0	0	0	0	0	0	

Table 2 (cont.).

Var. no.	CI or PI no.	Country of Origin	Variety name	Free Choice experiment: Weevils counted on each variety: 3 days after inf.	6 days after inf.	9 days after inf.	avg. no. of weevils per var.	Free Choice experiment: Weevils emerged: Feed damage	In-complete	Com-plete	Total emerg	Non choice exp.: Weevils emerged: Feed damage	In-complete	Com-plete	Total emerg	Var. feature
990	PI 226178	Japan	Miho 111	11	15	8	11.3	2	0	0	0	1	0	0	0	
991	PI 279964	Italy		8	6	4	6.6	2	1	1	2	11	0	1	1	
992	PI 224815	Japan	Hattan 10	13	11	3	9.0	9	0	0	0	3	1	0	1	Fd
993	PI 162262	Korea	Na Do	4	6	12	7.3	3	0	0	0	2	0	0	0	
994	CI 8861	Korea	Suzume Shirosu	9	7	5	7.0	6	0	1	1	6	0	0	0	
995	PI 291666	Japan		45	65	47	52.3	22	0	1	1	16	4	11	15	o
996	CI 8851	Korea	Schow Sung Sensho	12	12	7	10.3	2	0	0	0	3	0	0	0	
997	PI 162118	Japan	Norin No. 22	2	1	6	3.0	2	0	1	1	3	0	0	0	
998	PI 274482	Korea		6	1	7	4.6	2	0	0	0	5	0	1	1	
999	PI 162266	Korea	Nam Sun	7	11	13	10.3	6	0	2	2	9	2	6	8	Fd
1000	PI 291642	Japan		13	3	3	6.3	2	0	0	0	4	1	0	1	
1001	PI 162115	Japan	Norin No. 8	6	5	8	6.3	3	0	0	0	2	0	0	0	
1002	CI 5848	Korea	Santoro	26	16	11	17.6	10	1	0	1	9	0	0	0	so
1003	CI 9351			16	8	12	12.0	4	0	0	0	1	0	0	0	
1004	PI 162252	Korea	Nam Dae Bio	28	35	13	25.3	4	1	4	5	1	1	12	13	tf
1005	PI 273543	Italy		10	10	8	9.3	2	0	1	1	5	0	0	0	
1006	CI 8858	Korea	Si Ca Chata Machi	8	7	14	9.6	3	1	0	1	3	0	0	0	
1007	PI 167070	Japan		2	1	6	3.0	0	0	0	0	3	0	0	0	
1008	PI 280674	Japan		19	23	38	26.6	9	0	0	0	3	0	0	0	so
1009	PI 279567	Italy		5	6	8	6.3	1	1	0	1	2	0	0	0	
1010	PI 229169	Japan	Fuzisaka 4	12	16	10	12.6	3	1	0	1	2	1	1	2	
1011	CI 9008		CI 9214 x CP 231 - CI 9172	1	1	7	3.0	0	0	0	0	3	0	0	0	
1012	CI 9633		Nalle Vatna	7	13	17	12.3	2	0	0	0	4	0	0	0	
1013	PI 280675	Japan		4	2	2	2.6	0	0	0	0	1	0	0	0	
1014	CI 5818	Korea	Ni I Goka Chichibu Machi	9	18	18	15.0	9	0	2	2	5	1	1	2	so

Table 2 (cont.).

Var. no.	CI or PI no.	Country of Origin	Variety name	Free Choice experiment: Weevils counted on each variety: 3 days after inf.	6 days after inf.	9 days after inf.	avg. no. of weevils per var.	Free Choice experiment: Weevils emerged: Feed age	In-dam-com-plete	Com-plete	Total emerg	Non choice exp.: Weevils emerged: Feed age	In-dam-com-plete	Com-plete	Total emerg	Var. feature
1015	PI 224830	Japan	Kanto 51	4	9	12	8.3	1	0	0	0	5	0	0	0	
1016	CI 8998	U.S.A. Lo.	Nato	20	7	5	10.6	4	0	0	0	3	0	0	0	
1017	PI 226163	Japan	Fuzikaka 1	18	8	15	13.6	5	0	0	0	6	0	0	0	
1018	CI 8648	Korea	Ao Mari Wase Akage	16	26	13	18.3	8	0	3	3	3	0	0	0	so
1019	CI 8654	Korea	Chang Yon Zae Rae	20	13	15	16.0	4	0	0	0	1	0	0	0	
1020	PI 224924	Japan	Tonewase	11	14	3	9.3	4	0	0	0	5	1	2	3	
1021	CI 9478		4 II - 1 - 8 x Rexoro 252	11	1	21	11.0	5	0	0	0	6	0	0	0	
1022	PI 226185	Japan	Rikuto Norin 14	32	33	52	39.0	15	1	3	4	16	8	6	14	o
1023	PI 226163	Japan	Fuzisaka 1	9	2	18	9.6	2	0	0	0	3	0	0	0	
1024	PI 275444	Italy		12	9	26	15.6	3	0	0	0	4	0	0	0	
1025	PI 229970	Italy		13	5	13	10.3	4	0	0	0	6	0	0	0	
1026	PI 224618	Japan	Hekari	6	4	7	5.6	2	0	0	0	2	0	0	0	
1027	PI 226167	Japan		8	3	5	5.3	4	0	0	0	2	1	0	1	
1028	PI 224915	Japan	Takanenishiki	4	4	6	4.6	6	0	0	0	5	0	0	0	
1029	PI 274490	Korea		12	5	3	6.6	3	0	0	0	4	0	0	0	
1030	PI 162177	Korea	Pul Zo	9	7	12	8.6	2	0	0	0	3	0	0	0	
1031	PI 224837	Japan	Kurobe I	36	18	14	22.6	15	0	0	0	6	3	4	7	so
1032	PI 197385	Japan		5	7	6	6.0	2	0	0	0	4	1	0	1	
1033	PI 226824	Japan	Ebzakae	8	7	8	7.6	1	0	1	1	0	0	0	0	
1034	PI 260642	Japan		4	6	0	3.3	0	0	0	0	1	0	0	0	
1035	PI 224838	Japan	Yuubae	13	5	6	8.0	2	1	0	1	4	0	0	0	
1036	PI 274214	Japan		6	6	5	5.6	2	1	1	2	2	1	0	1	
1037	PI 226825	Japan	Toeam 22	14	7	16	12.3	4	0	0	0	4	0	0	0	
1038	PI 224731	Japan	Uraken I	12	15	13	13.3	13	1	1	2	11	2	5	7	o
1039	PI 226159	Japan	Chokiyo Aichi	6	7	2	5.0	2	1	0	1	3	0	0	0	

Table 2 (cont.).

Var. no.	CI or PI no.	Country of Origin	Variety name	Free Choice experiment: Weevils counted on each variety: 3 days after inf.	6 days after inf.	9 days after inf.	avg. no. of weevils per var.	Free Choice experiment: Weevils emerged: Feed dam age	In-com-plete	Com-plete	Total emerg	Non choice exp.: Weevils emerged: Feed dam age	In-com-plete	Com-plete	Total emerg	Var. feature
1040	PI 224923	Japan	Tokushima Banto 1	5	5	5	5.0	1	0	0	0	3	0	0	0	
1041	PI 274475	Korea		6	7	3	5.3	4	0	0	0	3	0	1	1	
1042	PI 291506	Hungary		4	8	2	4.6	3	1	0	1	5	0	0	0	
1043	PI 226177-1	Japan		18	50	27	31.6	11	1	0	1	12	4	5	9	so
1044	PI 291635	Japan		24	16	6	15.3	2	1	0	1	1	0	0	0	
1045	CI 8821	Korea	Oi Rang	20	12	5	12.3	2	0	0	0	2	0	0	0	
1046	PI 162351	Korea	Yiu An Zo	12	9	5	8.6	5	0	1	1	3	0	0	0	
1047	PI 604702		CI 9453 x CI 9187	13	8	1	7.3	3	0	0	0	2	0	0	0	
1048	PI 202994	Japan	Norin No. 31	1	2	2	1.6	0	0	0	0	1	0	0	0	
1049	CI 9595		L - M x CR	5	12	4	7.0	3	0	0	0	1	0	0	0	
1050	PI 276485	India		16	17	11	14.6	8	1	0	1	3	0	0	0	so
1051	PI 224933	Japan	Yachikogane	10	10	7	9.0	3	1	4	5	7	1	0	1	tf, Ed
1052	PI 226173	Japan	Kidena	2	1	3	2.0	1	1	0	1	3	0	0	0	
1053	PI 279901	Italy		5	8	7	6.6	4	0	0	0	4	0	0	0	
1054	PI 224919	Japan	Hikotaro Mochi	3	3	10	5.3	4	0	0	0	1	0	0	0	
1055	CI 9600		Gulfrose x PI 215936	3	5	5	4.3	2	0	0	0	1	0	0	0	
1056	PI 162309	Korea	Si Moo	21	16	21	19.3	9	2	8	10	6	0	4	4	tf, Fd
1057	PI 226013	Japan	Hatamichiki	23	24	31	26.0	13	0	1	1	9	2	0	2	so
1058	PI 162343-1	Korea	Suee Zo	14	5	10	9.6	2	0	0	0	1	0	0	0	
1059	PI 162316	Japan	Japan	6	4	2	4.0	3	0	0	0	2	0	0	0	
1060	CI 8851-1	Korea	Suhan Sung Jamchi	23	20	13	18.6	20	0	3	3	8	0	0	0	o
1061	CI 8691	Korea	Kyue Il No. 37	42	41	37	40.0	26	0	2	2	15	11	11	22	o
1062	PI 276521	Korea		11	14	13	12.6	5	0	1	1	4	0	0	0	
1063	PI 493113	Japan	Hiroshima Mochi	11	8	14	11.0	7	0	0	0	4	0	0	0	

Table 2 (cont.).

Var. no.	CI or PI no.	Country of Origin	Variety name	Free Choice experiment: Weevils counted on each variety: 3 days after inf.	6 days after inf.	9 days after inf.	avg. no. of weevils per var.	Free Choice experiment: Weevils emerged: Feed age	In-dam-com-plete	Com-plete	Total emerg	Non choice exp.: Weevils emerged: Feed age	In-dam-com-plete	Com-plete	Total emerg	Var. feature
1064	PI 226165-1	Japan	Seo Kwao	6	8	5	6.3	2	0	0	0	4	0	0	0	
1065	PI 226210	Japan	Teruju	5	14	4	7.6	2	0	1	1	4	0	0	0	
1066	PI 226164	Japan	Fuzisaha 2	24	17	7	16.0	8	1	1	2	4	0	0	0	
1067	PI 6102515		North Rose x Zen.	7	2	4	4.3	2	0	0	0	4	1	0	1	
1068	CI 8823	Korea	Okuro Mochi	17	2	14	11.0	8	1	0	1	9	2	1	3	so
1069	PI 162291	Korea	Seo Kwang	7	6	4	5.6	2	0	0	0	2	0	0	0	
1070	PI 224833	Japan	Kinki 47	12	6	6	8.0	9	0	1	1	8	0	0	0	
1071	PI 275542	Italy		16	5	7	9.3	9	0	0	0	0	0	0	0	
1072	PI 224605	Japan	Fukubozu	6	4	3	4.3	3	0	0	0	5	0	0	0	
1073	CI 9488		CI 9214 x CI 9383	7	2	0	3.0	3	0	0	0	2	0	0	0	
1074	PI 291505	Hungary		8	4	1	4.3	7	1	0	1	5	0	0	0	
1075	PI 224829	Japan	Kamenoo I	7	6	6	6.3	3	0	0	0	2	0	0	0	
1076	CI 8856-2	Korea	Se Zic	24	46	29	33.0	33	2	2	4	10	18	9	27	o
1077	PI 291467	Hungary		2	0	4	2.0	2	0	0	0	2	1	1	2	
1078	PI 291041	Japan		14	25	16	18.3	21	0	1	1	9	1	1	2	so
1079	PI 291672	Japan		3	5	3	3.6	3	0	0	0	1	0	0	0	
1080	PI 127088	Japan		5	5	7	5.6	2	0	0	0	4	0	1	1	
1081	CI 9564	Korea	Dae Ku	11	4	11	8.6	4	0	0	0	2	0	0	0	
1082	CI 8598	Korea	Kinkabo	22	30	27	26.3	34	0	0	0	28	13	4	17	o
1083	CI 9437	Korea	Kyuc U Bo. 16	8	4	8	6.6	1	0	0	0	2	1	0	1	
1084	PI 279976	Italy		5	3	7	5.0	1	0	0	0	3	0	0	0	
1085	CI 9133		S 4527 A1 - 10, TP 49 x 46x.	14	15	9	12.6	9	1	0	1	4	0	0	0	
1086	PI 224869	Japan	Shin Ishyiro	16	11	7	11.3	4	0	1	1	11	2	0	2	

Table 2 (cont.).

Var. no.	CI or PI no.	Country of Origin	Variety name	Free Choice experiment: Weevils counted on each variety: 3 days after inf.	6 days after inf.	9 days after inf.	avg. no. of weevils per var.	Free Choice experiment: Weevils emerged: Feed age	In-com-plete	Com-plete	Total emerg	Non choice exp.: Weevils emerged: Feed age	In-com-plete	Com-plete	Total emerg	Var. feature
1087	PI 274476	Korea		11	12	6	9.6	3	1	0	1	4	0	0	0	
1088	PI 291631	Japan		5	3	4	4.0	2	1	1	2	3	0	0	0	
1089	CI 9459		Nova	11	3	4	6.0	3	0	0	0	5	1	0	1	
1090	PI JA1785	Japan		7	6	7	6.6	4	0	0	0	4	0	0	0	
1091	CI 9505		PI 215936 x CI 9214	12	6	5	7.6	3	0	0	0	2	0	0	0	
1092	PI 281787	Japan		3	2	1	2.0	2	0	0	0	1	0	0	0	
1093	CI 3836-1	Korea	Se Zic	31	43	30	34.6	41	3	2	5	28	26	14	40	o
1094	PI 224925	Japan	Tono 4	12	13	11	12.0	5	0	0	0	4	1	0	1	
1095	CI 3855	Korea	Sensho Tane	10	14	16	13.3	6	0	0	0	11	0	1	1	
1096	PI 224934	Japan	Wase Ebozima Mochi	11	15	8	11.3	6	1	0	1	4	1	0	1	
1097	PI 224826	Japan	Kairyo Akihoku	5	6	4	5.0	1	1	0	1	2	0	0	0	
1098	CI 9553	U.S.A.	Rosoro - Rx 250 - Mag.	22	24	8	18.0	5	0	0	0	5	0	0	0	so
1099	CI 2128	U.S.A. Io.	Improved Blue Rose	16	5	4	8.3	7	1	0	1	5	0	0	0	
1100	CI 1561-1		Caloro	16	9	10	11.6	1	0	0	0	4	2	2	4	
1101	PI 286163	Japan		2	3	4	3.0	1	1	0	1	6	0	0	0	
1102	PI 162258	Korea	Mosaik Zo Gick Zo	17	11	30	19.3	10	2	5	7	7	0	5	5	ff
1103	PI 162350	Korea	Chongcok Do	11	9	7	9.0	3	0	0	0	2	0	3	3	
1104	PI 279966	Italy		4	0	2	2.0	2	0	1	1	2	0	0	0	
1105	PI 162387	Korea	Dae Kuan Do	6	5	9	6.6	2	0	2	2	1	0	1	1	Pd
1106	PI 162426	Korea	Cha Na Lak	4	7	3	4.6	2	0	1	1	4	0	3	3	
1107	PI 299998	Japan	Norin Mochi No. 5	17	8	13	12.6	4	0	1	1	4	3	0	3	
1108	PI 251969	Japan		5	1	1	2.3	1	0	0	0	1	0	0	0	
1109	PI 162414	Japan	Norin No. 6	12	19	12	16.3	4	1	3	4	5	1	1	2	
1110	PI 279967	Italy		7	15	5	9.0	3	1	3	4	3	0	0	0	
1111	PI 291030	Hungary		25	9	8	14.0	5	0	0	0	4	0	0	0	
1112	CI 9120		D 6587 A1 - 11, IP 69 x Mex.	18	8	15	14.0	7	0	1	1	5	0	0	0	

Table 2 (cont.).

Var. no.	CI or PI no.	Country of Origin	Variety name	Free Choice experiment: Weevils counted on each variety: 3 days after inf.	6 days after inf.	9 days after inf.	avg. no. of weevils per var.	Free Choice experiment: Weevils emerged: Feed damage	In-complete	Com-plete	Total emerg	Non choice exp.: Weevils emerged: Feed damage	In-complete	Com-plete	Total emerg	Var. feature
1113	CI 9598		CI 9214 x CP 231 - CI 9122	8	8	2	6.0	2	0	0	0	3	0	0	0	
1114	PI 162363	Korea	Zick Baek Na	9	13	2	8.0	2	0	0	0	1	0	0	0	
1115	CI 8991			14	37	22	24.3	9	0	1	1	11	2	11	13	so
1116	PI 279979	Italy		4	3	1	2.6	0	0	0	0	3	0	0	0	
1117	PI 162360	Korea	Zang Zo	6	6	5	5.6	4	1	3	4	4	0	2	2	
1118	CI 9606		Bbt. x CP 231 (Sel. tr. 9402)	5	3	2	3.3	1	0	0	0	5	0	0	0	
1119	PI 291471	Hungary		17	9	6	10.6	2	0	0	0	6	0	0	0	
1120	PI 281764	Korea		3	11	3	5.6	5	0	0	0	4	0	0	0	
1121	PI 281786	Japan		5	3	1	3.0	6	0	0	0	10	1	0	1	
1122	CI 9593		Rexo. Zen. 8 x Lac.	5	4	4	4.3	3	0	0	0	2	0	0	0	
1123	CI 8690	Korea	Kagama Dongo Mochi	5	3	4	4.0	3	0	1	1	2	0	0	0	
1124	PI 291541	Hungary		9	9	8	8.6	4	0	0	0	3	0	0	0	
1125	CI 9576		Bbt. 50/2 x Gulfrose	9	13	5	9.0	1	0	0	0	2	0	0	0	
1126	PI 162249	Korea	Lynk U	8	3	4	5.0	2	0	0	0	1	0	0	0	
1127	PI 9187		R - 7689 x (Tp x RsBR)	6	4	3	4.3	2	0	0	0	3	0	0	0	
1128	PI 279963	Italy		10	10	8	9.3	1	0	0	0	1	0	0	0	
1129	CI 9178-2	U.S.A.	15/16 Rexoro	18	18	7	14.3	5	1	0	1	6	0	0	0	tf
1130	CI 9503		Ark Rose x Bbt. 50	3	17	3	7.6	3	0	0	0	3	0	0	0	
1131	CI 9609		PI 215936 x Lacrosse	5	2	1	2.6	0	0	1	1	2	0	0	0	
1132	CI 9429-2		Rexo - Red x Unknown	4	21	4	9.6	2	0	0	0	5	0	0	0	
1133	PI 279994	Italy		5	2	5	4.0	4	2	2	4	3	1	0	1	so
1134	PI 275451		H 4 (Ceylon)	12	7	9	9.3	9	0	0	0	7	0	0	0	so
1135	PI 280504	Italy		11	3	3	5.6	0	1	0	1	3	0	0	0	
1136	PI 279960	Italy		13	14	7	11.3	6	1	0	1	5	0	0	0	
1137	PI 280550	India		16	12	4	10.6	5	0	0	0	7	0	0	0	

Table 2 (cont.).

Var. no.	CI or PI no.	Country of Origin	Variety name	Free Choice experiment: Weevils counted on each variety: 3 days after inf.	6 days after inf.	9 days after inf.	avg. no. of weevils per var.	Free Choice experiment: Weevils emerged: Feeding damage	In-complete	Complete	Total emerg	Non choice exp.: Weevils emerged: Feeding damage	In-complete	Complete	Total emerg	Var. feature
1138	PI 162795	Korea	Suk Na	16	9	6	10.3	4	0	4	4	2	3	0	3	
1139	PI 162346	Korea	Wae Zo	8	10	5	7.6	8	1	2	3	3	0	0	0	
1140	CI 9559		Lac. x Caloro/3	18	12	3	11.0	1	0	0	0	3	0	0	0	
1141	CI 9371		7/8 Rex. x R - D (Aromatic)	11	9	2	7.3	2	0	0	0	5	1	0	1	
1142	PI 291521	Hungary		14	11	7	10.6	3	0	0	0	3	0	0	0	
1143	CI 2534		CP 231 x HO 12	5	6	1	4.0	0	0	0	0	1	0	0	0	
1144	CI 8845	Korea	Sanhyang Daena	12	16	9	12.3	11	0	1	1	8	1	1	2	o
1145	CI 9578		Nova x Ark Rose	12	3	0	5.0	1	0	0	0	4	0	0	0	
1146	PI 291483	Hungary		10	5	0	5.0	2	0	0	0	3	1	0	1	
1147	PI 162354	Korea	Yong Chun	17	13	15	15.0	4	1	4	5	8	0	1	1	fd
1148	CI 8829	Korea	Mikau No. 17	28	12	14	18.0	6	0	0	0	12	1	0	1	o
1149	PI 248164	Japan		7	3	10	6.6	1	0	0	0	1	0	0	0	
1150	CI 8993	U.S.A. Tex.	Century Patna 231	15	4	4	7.6	4	0	0	0	1	0	0	0	
1151	PI 274498	Korea		9	4	2	5.0	1	0	0	0	5	0	2	2	
1152	PI 279977	Italy		6	4	10	6.6	2	0	0	0	3	0	0	0	
1153	CI 8849	Korea	Jun To	10	11	9	10.0	3	0	0	0	1	0	0	0	
1154	PI 279962	Italy		8	5	16	9.6	3	0	0	0	3	0	0	0	
1155	PI 208644	Japan		22	12	14	16.0	4	0	1	1	7	0	0	0	cf
1156	PI 162352	Korea	Ho Sul To	9	6	10	8.3	1	0	0	0	2	0	0	0	
1157	PI 191608	Bolivia		17	4	11	10.6	3	0	0	0	3	0	0	0	
1158	PI 279593	Korea		19	6	3	10.0	7	0	0	0	7	0	0	0	
1159	PI 291582	Hungary		8	9	5	7.3	1	1	1	2	0	0	0	0	
1160	PI 291583	Hungary		9	3	2	6.6	1	0	0	0	3	0	0	0	
1161	PI 279992	Italy		18	12	3	11.0	2	1	0	1	5	0	1	1	
1162	PI 162350	Korea	Suk Zo	4	8	1	4.3	3	0	0	0	3	0	0	0	

Table 2 (cont.).

Var. no.	CI or PI no.	Country of Origin	Variety name	Free Choice experiment: Weevils counted on each variety: 3 days after inf.	6 days after inf.	9 days after inf.	avg. no. of weevils per var.	Weevils emerged: Feed dam-age	In-com-plete	Com-plete	Total emerg	Non choice exp.: Weevils emerged: Feed dam-age	In-com-plete	Com-plete	Total emerg	Var. feature
1163	CI 9566		B 5617 A 40 - 24 - 2, Rexoro x PI 183331	14	35	23	24.0	4	0	0	0	4	0	1	1	
1164	CI 9448-2	U.S.A.	Rexoro sel.	27	18	22	22.3	6	0	0	0	8	0	0	0	tf
1165	PI 162298	Korea	Su Sung Do	5	4	24	11.0	4	0	0	0	3	0	0	0	
1166	PI 279901	India		27	10	12	19.6	8	0	0	0	6	0	0	0	so
1167	PI 248517	Italy		21	10	26	19.0	5	0	0	0	6	0	0	0	
1168	PI 224924	Japan	Tonewase	22	12	16	13.3	7	0	0	0	6	0	0	0	
1169	PI 291541	Hungary		7	4	13	8.0	1	0	1	1	5	0	0	0	
1170	PI 215520	Italy	Maratelli	9	6	14	9.6	2	0	0	0	4	0	0	0	
1171	PI 162131	France	Suito Norin No. 3	8	4	8	6.6	4	0	0	0	4	0	0	0	Fd
1172	PI 277707	Japan		7	5	9	7.0	1	0	0	0	1	0	0	0	
1173	PI 273969	Italy		7	10	7	8.0	1	0	0	0	3	0	0	0	
1174	PI 162154	Japan	Taisho Mochi	9	3	1	4.3	3	0	0	0	2	0	0	0	
1175	CI 9564		PI 215936 x CI 9402	38	37	26	33.6	10	0	0	0	14	1	1	2	so
1176	PI 224939	Japan	Zuiho	15	7	3	8.3	1	0	0	0	2	0	0	0	
1177	CI 9483		R - D x Rexo. - Zen.	6	2	1	3.0	1	0	0	0	3	0	0	0	
1178	PI 187090	Japan		13	7	9	9.6	4	0	2	2	9	1	2	3	
1179	CI 9013	U.S.A. Lo.	Toro	6	3	4	4.3	1	0	0	0	1	0	0	0	
1180	CI 9596		(Century x R - Z) x Bbt. - 50	15	4	4	7.6	2	0	0	0	2	0	0	0	
1181	CI 9505		Bbt. x CP 231 (sel. Fr. 9402)	26	10	33	23.0	3	0	1	1	7	0	0	0	
1182	PI [illegible]	Japan	Tsurugiba	11	11	13	11.6	4	0	0	0	1	0	0	0	
1183	PI [illegible]	Italy	No. 82	10	10	16	12.0	1	0	2	2	2	0	0	0	
1184	PI [illegible]	Italy		18	33	25	25.3	2	1	1	2	7	1	0	0	
1185	PI [illegible]	[illegible]	[illegible]	21	14	22	19.0	6	0	3	3	11	0	0	0	so

Table 2 (cont.).

Var. no.	CI or PI no.	Country of Origin	Variety name	Free choice: Weevils counted on each variety, 3 days after inf.	6 days after inf.	9 days after inf.	avg. no. of weevils per var.	Weevils emerged: Feeding damage	Incomplete	Complete	Total emerg.	Non choice exp.: Weevils emerged: Feeding damage	Incomplete	Complete	Total emerg.	Var. feature
1186	PI 291673	Japan		6	12	8	8.6	1	0	0	0	2	0	0	0	
1187	PI 254065	Japan		10	5	10	8.3	4	0	0	0	3	0	0	0	
1188	PI 279974	Italy		3	7	11	7.0	4	0	3	3	8	0	0	0	
1189	CI 9299	Japan	Kinko	9	7	10	8.6	2	1	0	1	2	0	0	0	
1190	PI 224694	Japan	Saitama Mochi 10	19	15	17	17.0	6	0	4	4	5	0	0	0	
1191	PI 279978	Italy		5	2	2	3.0	2	0	1	1	3	0	0	0	
1192	CI 4044	U.S.A. Ark.	Rexoro x Sup Blue Rose	4	15	4	7.6	5	0	0	0	3	0	0	0	
1193	CI 7537	Japan		5	2	11	6.0	0	0	0	0	3	0	0	0	
1194	CI 9416		Calrose	9	21	26	18.6	1	1	0	1	3	0	0	0	
1195	PI 280673	Japan		16	13	19	16.0	2	0	0	0	6	0	0	0	
1196	CI 9985	Korea	Hakoku Mochi	9	9	11	9.6	1	0	0	0	3	0	0	0	
1197	PI 184501	Japan	Scented Rice A Aromatic	11	6	9	8.6	1	0	0	0	4	0	0	0	
1198	PI 256000	Japan	Bonsai Ine	15	16	8	13.3	5	0	1	1	6	0	0	0	
1199	CI 8948	Korea	Zo Chi Ryuc U No. 20	12	13	13	14.3	5	0	0	0	4	0	0	0	
1200	PI 296928	Japan	Toyama 3	8	16	24	16.0	3	1	1	2	4	0	1	1	
1201	PI 250426	Japan	Kairyo Akikoku	11	25	7	14.3	2	0	0	0	3	1	1	2	
1202	PI 295891	Japan	Rikuto Norin 24	7	2	10	6.3	0	0	0	0	1	0	0	0	
1203	PI 291579	Hungary		4	14	3	7.0	1	0	0	0	2	0	0	0	
1204	CI 9897		PI 215936 x CI 9214	10	4	1	5.0	2	1	0	1	4	0	0	0	
1205	PI [illegible]	Korea		16	7	11	11.3	6	0	1	1	5	0	0	0	
1206	CI 6819	Korea	[illegible]	14	3	4	7.0	5	0	0	0	5	0	0	0	
1207	CI [illegible]	U.S.A. Tex.	LaCrosse	15	4	4	7.6	1	0	0	0	1	0	0	0	
1208	PI [illegible]	Korea	[illegible] No. 4	14	5	17	12.3	3	0	0	0	2	0	1	1	
1209	PI [illegible]	Japan	[illegible]	63	25	22	30.0	16	0	0	0	15	1	2	3	[illegible]
1210	PI [illegible]	Japan	[illegible] Mochi	7	5	9	7.3	1	0	0	0	1	0	0	0	

Table 2 (cont.).

Var. no.	CI or PI no.	Country of Origin	Variety name	Free Choice experiment: Weevils counted on each variety: 3 days after inf.	6 days after inf.	9 days after inf.	avg. no. of weevils per var.	Free Choice experiment: Weevils emerged: Feed damage	In-complete	Com-plete	Total emerg	Non choice exp.: Weevils emerged: Feed damage	In-complete	Com-plete	Total emerg	Var. feature
1211	PI 279986	Italy		21	5	13	13.0	4	1	3	4	9	0	0	0	
1212	PI 280001	Italy		9	12	16	12.3	6	0	3	3	4	0	0	0	
1213	CI 9402		Bbt. x CP 231	14	14	9	12.3	4	0	0	0	2	0	0	0	
1214	CI 1600	Italy	Colusa	3	7	7	5.6	2	0	0	0	3	0	0	0	
1215	PI 279988	Italy		13	14	14	13.6	3	0	3	3	4	0	1	1	
1216	CI 9537		CI 9214 x CP 231 - CI 9122	2	3	6	3.6	0	0	0	0	3	0	0	0	
1217	CI 8827	Korea	Pyong San	53	55	44	50.6	34	1	1	2	26	10	13	23	o
1218	CI 9594		Rexo. - Zen. x 250 Mag.	7	7	5	6.3	1	0	0	0	3	0	0	0	
1219	CI 9590		Vegold Sel.	12	6	3	7.0	4	0	0	0	1	0	1	1	
1220	PI 274477	Korea		15	11	8	11.3	3	0	1	1	4	0	0	0	
1221	PI 226190	Japan	Rikuto Norin 21	36	26	21	27.6	12	2	1	3	10	1	3	4	
1222	CI 9554		Lac. - S 426 A x Zen.	20	19	9	16.0	1	0	0	0	3	0	0	0	
1223	PI 281473-1	Italy		10	9	10	9.6	2	0	0	0	5	0	0	0	
1224	PI 279994	Italy		16	3	5	8.0	1	0	0	0	3	0	0	0	
1225	PI 279990	Italy		7	8	4	6.3	1	0	0	0	6	0	0	0	
1226	CI 9574		Bbt. 50/2 x Gulfrose	6	5	8	6.3	3	0	0	0	1	0	0	0	
1227	PI 605206		CI 9509 x Ark Rose	7	2	4	4.3	1	0	0	0	0	0	0	0	
1228	PI 224657	Japan	Norin 14	7	3	17	9.0	4	1	3	4	6	2	0	2	Fd
1229	PI 226165-2	Japan		17	9	15	13.6	5	0	0	0	5	1	0	1	
1230	CI 8691	Korea	Kakuta	5	5	9	6.3	2	0	0	0	1	0	0	0	
1231	CI 9582		Bbt. x CP 231	12	17	16	15.0	3	0	1	1	3	0	0	0	
1232	PI 279991	Italy		4	2	3	3.0	0	0	0	0	0	0	0	0	

Table 2 (cont.).

Var. no.	CI or PI no.	Country of Origin	Variety name	Free Choice experiment: Weevils counted on each variety: 3 days after inf.	6 days after inf.	9 days after inf.	avg. no. of weevils per var.	Weevils emerged: Feeding damage	Incomplete	Complete	Total	No choice exp.: Weevils emerged: Feeding damage	Incomplete	Complete	Total	Var. feature
1233	PI 279897	Italy		6	5	2	4.3	1	0	1	1	3	1	0	1	
1234	PI 224903	Japan	Shimotsuki	9	8	3	6.6	4	0	1	1	3	1	0	1	
1235	PI 164582	Japan	Scented Rice B Hainuzuku	12	17	9	9.3	1	2	4	6	4	0	0	0	tf
1236	PI 285401	Japan		24	11	14	16.3	1	0	1	1	2	0	0	0	
1237	PI 231659	Japan	Sandwacis Forn	22	10	13	15.0	6	0	8	8	5	1	0	1	tf
1238	PI 226166	Japan	Fuzisaka 2	13	6	11	10.0	9	0	1	1	7	0	0	0	green
1239	PI 274497	Korea		12	5	12	9.6	4	0	0	0	4	0	0	0	
1240	CI 8601	Korea	Horing	42	32	24	32.6	18	3	4	7	8	3	0	3	sc
1241	PI 279561	Italy		39	16	14	23.0	6	0	2	2	8	0	7	7	sc
1242	PI 274400	Korea		21	26	15	20.6	5	1	3	4	5	0	0	0	
1243	PI 275446	Italy		12	4	11	9.0	3	0	2	2	0	0	0	0	
1244	CI 8310	U.S.A. Ark.	Ark Rose	5	6	2	4.3	1	1	0	1	0	0	1	1	
1245	PI 187095	Japan		11	6	1	6.0	6	0	0	0	3	0	0	0	
1246	PI 226209	Japan	Tohenori	30	22	35	29.0	10	1	7	8	5	0	8	8	tf
1247	PI 162192	Korea	Dong San Zo	11	31	14	18.6	15	0	2	2	9	0	0	0	so
1248	PI 279971			12	35	17	21.3	3	0	2	2	2	2	4	6	
1249	PI 226208	Japan		21	7	15	14.3	8	0	0	0	8	0	0	0	
1250	CI 6603	Korea	Yemoto	44	33	46	41.0	5	0	1	1	5	0	7	7	tf
1251	PI 187089	Japan		7	4	7	6.0	1	0	2	2	5	0	0	0	fd
1252	PI 162379	Korea	Zo Sark Do	19	41	15	25.0	7	0	4	4	8	0	1	1	
1253	PI 203004	Japan	Shinju No. 1	6	4	3	4.3	2	0	0	0	4	0	0	0	
1254	PI 248922	Italy		11	17	4	10.6	2	0	0	0	9	0	0	0	
1255	PI 226160	Japan	Oura	27	19	15	20.3	5	0	0	0	3	0	0	0	
1256	CI 9597		CI 6008 x Rex 13	42	62	37	47.0	24	0	0	0	17	4	0	4	sa
1257	PI 276576	Korea		9	26	4	13.0	6	0	1	1	6	0	0	0	

Table 2 (cont.).

Var. no.	CI or PI no.	Country of Origin	Variety name	Free Choice experiment: Weevils counted on each variety: 3 days after inf.	6 days after inf.	9 days after inf.	avg. no. of weevils per var.	Free Choice experiment: Weevils emerged: Feed damage	In-complete	Com-plete	Total emerg	Non choice exp.: Weevils emerged: Feed damage	In-complete	Com-plete	Total emerg	Var. feature
1256	CI 9454		Lac. x Zen. Nira	10	7	17	11.3	4	0	0	0	3	0	0	0	
1259	PI 291668	Japan		3	2	12	5.6	1	0	0	0	2	0	0	0	
1260	CI 9481		Lac. x Zen. Nira	12	20	3	11.6	5	0	0	0	9	0	0	0	
1261	CI 9579		Lac. - S 426 Ax x Zen.	7	9	13	9.6	0	1	0	1	5	1	0	1	
1262	PI 224890	Japan	Sekujama	16	1	5	7.3	3	0	0	0	2	0	0	0	
1263	PI 291765	Korea		18	13	6	12.3	5	0	0	0	4	1	0	1	so
1264	CI 9587		Lac. x Caloro/3	11	3	5	6.3	7	0	0	0	4	0	0	0	
1265	PI 162121	Japan	Norin No. 29	14	1	4	6.3	4	0	0	0	10	1	1	2	
1266	CI 7787	U.S.A. Ark.	Zenith	13	8	2	7.6	5	0	0	0	4	0	0	0	
1267	PI 224799	Japan	Benkei	5	1	14	6.6	2	0	0	0	1	0	0	0	
1268	PI 224805	Japan	Gaisen Mochi	18	15	17	16.6	7	0	0	0	9	0	1	1	so
1269	PI 273470	Japan		5	6	2	4.3	1	0	1	1	8	1	1	2	Fd
1270	PI 164498	Japan	Fujisaki No. 4	1	2	1	1.3	1	0	0	0	3	0	0	0	
1271	PI 291644	Japan		1	2	3	2.0	2	0	0	0	2	0	0	0	
1272	PI 224905	Japan	Shin 5	19	16	8	17.6	8	0	1	1	4	1	1	2	tf, Fd
1273	PI 162153	Japan	Tanginboshu	5	5	7	5.6	6	0	0	0	5	0	0	0	
1274	CI 9460		Lac. x Zen. Nira	6	4	3	4.3	1	0	0	0	0	0	0	0	
1275	PI 215523	France	Stripe 136 7	16	13	16	15.0	6	0	0	0	6	0	0	0	
1276	PI 162124	Japan		32	9	15	18.6	7	0	0	0	12	0	0	0	
1277	PI 291468	Hungary		16	5	7	9.3	4	0	0	0	4	0	0	0	
1278	PI 215936	Taiwan	487 Tainan Iku	14	11	1	8.6	2	0	0	0	5	1	0	1	
1279	CI 9543		Rexo - Rx x R - 252	7	10	14	10.3	4	0	0	0	4	1	0	1	
1280	CI 8650	Korea	Bakkye	2	8	3	4.3	2	0	0	0	4	0	0	0	
1281	PI 226156	Japan	Asahi Mochi	4	2	8	4.6	1	0	1	1	3	0	0	0	
1282	PI 226166	Japan		18	38	15	23.6	14	1	0	1	10	1	2	3	so

Var. no.	CI or PI no.	Country of Origin	Variety name	Free Choice experiment: Beetle counted on each variety: 3 days after infest.	6 days after infest.	9 days after infest.	avg. no. of beetles per var.	No choice exp.: Beetle assigned: Feeding damage-cotyledons	Feeding damage-true leaves	Beetle counted: Feeding damage-cotyledons	Feeding damage-true leaves	Total	Var. resistance
1283	PI 169139	Japan	Saito Nogin No. 13	9	14	11	11.3	5	0	0	0	4	0	0	0	
1284	PI 208000	Italy		9	15	11	11.6	2	0	2	2	3	0	0	0	
1285	CI 9486-6		Bbt. x CP 231	7	6	2	5.0	1	0	0	0	3	0	0	0	
1286	CI 9602		Bbt. 50 x BO 10	6	5	4	5.0	1	0	0	0	3	0	0	0	
1287	PI 224922	Japan	Tedorimaso	13	15	22	16.6	7	0	0	0	7	0	0	0	
1288	CI 9601		CP 231/2 x BO 12	15	12	9	12.0	3	0	0	0	2	0	0	0	
1289	PI 286549	India		13	14	10	12.3	3	0	0	0	1	0	0	0	
1290	PI 224913	Japan	Sodairyu Inc	50	32	32	38.0	10	0	1	1	6	6	5	11	tf, fd
1291	PI 224906	Japan	Shin 2	16	8	19	14.3	2	0	0	0	9	0	0	0	tf_4 Fd
1292	CI 9604		Bbt. 50 x BO 10	14	8	3	8.3	2	0	0	0	2	0	0	0	
1293	PI 224877	Japan	Narin 49	26	13	5	14.6	5	0	0	0	4	0	2	2	Fd
1294	PI 231651	Japan	Kubra Korn	15	5	4	8.0	3	1	3	4	2	0	0	0	group
1295	PI 275539	Italy		9	8	14	11.0	4	0	0	0	5	0	0	0	
1296	PI 202976	Japan	Kudei Asahi	21	7	1	9.6	4	0	0	0	4	0	0	0	
1297	PI 224912	Japan	Koruta Asahi	9	12	3	8.0	4	0	2	2	3	0	1	1	
1298	PI 224915	Japan	Takamenishiki	14	7	4	8.3	3	0	0	0	4	0	0	0	
1299	CI 5780	Japan		26	31	16	24.3	10	0	0	0	9	1	0	1	
1300	CI 5793	U.S.A. Lo.	Supreme Blue Rose	8	12	12	10.6	6	0	0	0	2	0	0	0	
1301	PI 162157	Japan	Wase Shihiki No. 1	4	11	13	9.3	3	1	1	2	9	0	0	0	Fd
1302	PI 291535	Hungary		3	6	1	3.3	0	0	0	0	2	0	0	0	
1303	PI 224917	Japan	Tabedo Wase	19	19	31	23.0	8	3	4	7	5	3	3	5	so, Fd
1304	PI 279980	Italy		6	2	5	4.3	1	0	0	0	2	0	0	0	
1305	PI 279996	Italy		11	6	3	6.6	2	0	2	2	5	0	2	2	
1306	PI 162137	Japan	Saito-Nogin No. 10	17	10	7	13.3	3	0	0	0	4	0	0	0	
1307	PI 224879	Japan	Norin 49	12	2	11	8.3	5	3	2	5	5	0	0	0	tf, Fd
1308	PI 264263	Japan		26	47	33	35.3	10	1	5	6	8	0	1	1	

Table 2 (cont.).

Var. no.	CI or PI no.	Country of Origin	Variety name	Free Choice experiment: Weevils counted on each variety: 3 days after inf.	6 days after inf.	9 days after inf.	avg. no. of weevils per var.	Free Choice experiment: Weevils emerged: Feed age	In-dam-com-plete	Com-plete	Total emerg	Non choice exp. Weevils emerged: Feed age	In-dam-com-plete	Com-plete	Total emerg	Var. feature
1309	PI 202987	Japan	Norin 12	11	17	16	14.6	6	0	0	0	5	0	0	0	
1310	PI 162132	Japan	Suito Norin No. 4	3	4	1	2.6	1	0	1	1	3	0	0	0	
1311	CI 9544		CI 9214 x CP 231 - CI 9122 (ek)	5	1	2	2.6	0	0	0	0	1	0	0	0	
1312	CI 8990	U.S.A. Tex.	Bluebonnet 50 (CI 8322)	6	15	3	8.0	3	0	0	0	4	0	0	0	
1313	CI 9603		PI 215936 x CI 9214	8	8	7	7.6	3	0	0	0	1	0	0	0	
1314	PI 220155	Japan	Akatsuki Mochi	6	3	6	5.0	1	0	0	0	4	0	0	0	
1315	PI 224916	Japan	Takara	7	8	1	5.3	2	0	0	0	4	0	0	0	
1316	PI 291636	Japan		10	12	6	9.3	1	0	0	0	3	0	0	0	
1317	PI 224652-1	Japan		14	13	4	10.3	1	0	1	1	3	0	0	0	
1318	CI 9552		Rexoro x Bozu	19	32	12	21.0	9	0	1	1	5	1	0	1	so
1319	CI 8988	U.S.A. Calif.	Calrose	19	5	8	10.6	6	0	0	0	4	0	0	0	
1320	PI 197393	Japan		5	3	3	3.6	1	0	0	0	1	0	0	0	
1321	CI 9306	U.S.A.	Bill Sel. x TP x R Sbe	12	6	9	9.0	2	0	0	0	1	0	0	0	
1322	PI 224937	Japan	Yonpyuki Mochi	22	34	21	25.6	6	1	0	1	5	0	0	0	green
1323	CI 9531-2		R - Prlf x Sel. G, C 554	15	23	5	14.3	7	0	0	0	7	0	0	0	
1324	CI 9556		CI 9453 x CI 9187	16	3	3	7.3	2	1	0	1	1	0	0	0	
1325	PI 274499	Korea		5	3	3	3.6	4	0	0	0	7	0	0	0	Fd
1326	PI 224631	Japan	Kinoi C Bu	17	9	10	12.0	5	0	0	0	7	2	3	5	tf
1327	PI 215517	France	Allorio 11	43	36	17	32.0	9	0	1	1	8	0	1	1	
1328	PI 162123	Japan	Norin No. 37 Kiuki 45	21	11	1	11.0	7	1	1	2	8	1	7	8	tf
1329	PI 224900	Japan	Sensho	10	26	12	16.0	7	1	1	2	6	0	0	0	o

Table 2 (cont.).

Var. no.	CI or PI no.	Country of Origin	Variety name	Free choice experiment: Weevils counted on each variety: 3 days after inf.	6 days after inf.	9 days after inf.	Avg. no. of weevils per var.	Weevils emerged: Testa damage	Incom-plete	Com-plete	Total	No choice exp.: Weevils emerged: Testa damage	Incom-plete	Com-plete	Total	Var. remarks
1330	PI 279989	Italy		10	23	5	12.6	5	0	1	1	5	0	0	0	
1331	PI 236107	Japan	Rikuto Norin 17	35	17	13	22.6	8	0	0	0	9	0	0	0	[illegible]
1332	CI 9505		Ark Rose x Rbt. 50	14	11	6	10.3	7	0	0	0	8	0	0	0	
1333	PI 162651	Japan	Saito Norin No. 37	10	8	9	9.0	2	0	1	1	1	1	0	1	
1334	CI 5862-2	Japan		9	16	11	12.0	4	0	0	0	2	0	0	0	
1335	PI 234888	Japan	Rikuto Norin 4	58	72	53	61.0	56	0	1	1	18	20	17	37	[illegible]
1336	PI 234670	Japan	Norin 39	12	14	12	12.6	3	0	1	1	6	0	0	0	
1337	PI 236162	Japan		12	13	9	11.3	1	0	0	0	1	0	0	0	
1338	PI 236696	Korea		13	14	11	12.6	4	1	0	1	5	0	0	0	[illegible]
1339	CI 5610	Japan	Hinei Early No. 4	36	42	21	33.0	10	0	2	2	7	2	4	6	[illegible]
1340	PI 236930	Japan	Yamabiko 2	9	17	12	12.6	4	0	0	0	3	0	0	0	
1341	PI 274491	Korea		31	16	13	20.0	5	0	0	0	8	1	0	1	
1342				18	19	14	17.0	2	0	2	2	4	0	0	0	
1343	CI 5883	U.S.A. La.	Early Prolific	16	10	15	13.6	1	0	0	0	5	0	0	0	
1344	CI 1779	U.S.A.	Rexoro	21	23	22	22.0	8	0	2	2	7	1	1	2	[illegible]
1345	PI 225902	Japan	Shiga Habitan Mochi	7	11	4	7.3	4	1	0	1	3	0	0	0	
1346	PI 224652-2	Japan		8	6	10	8.0	3	1	0	1	3	0	0	0	
1347	PI 239074	Japan	To To	5	6	12	7.6	2	0	0	0	7	0	0	0	
1348	PI 202979	Japan	Kyushu Asahi	4	1	2	2.3	2	0	0	0	3	0	1	1	
1349	CI 8321	U.S.A.	Texas Patna	20	20	9	16.3	6	0	0	0	10	0	1	1	[illegible]
1350	PI 276886	Japan	Ou 188	11	3	2	5.3	5	2	2	4	5	0	0	0	
1351	CI 8802	Korea	Kusamoto No. 1	11	13	11	11.6	4	2	0	2	4	3	0	3	[illegible]
1352	PI 202950	Japan	Chuki	8	12	3	7.6	6	3	3	6	4	0	0	0	
1353	PI 104499	Japan	Fujisaka No. 5	13	2	0	5.0	3	0	0	0	4	0	0	0	
1354	PI 228816	Japan		15	11	7	11.0	6	0	2	2	5	0	1	1	

Table 2 (cont.).

Var. no.	CI or PI no.	Country of Origin	Variety name	Free Choice experiment: Weevils counted on each variety: 3 days after inf.	6 days after inf.	9 days after inf.	avg. no. of weevils per var.	Free Choice experiment: Weevils emerged: Feed damage	In-com-plete	Com-plete	Total emerg	Non choice exp.: Weevils emerged: Feed damage	In-com-plete	Com-plete	Total emerg	Var. feature
1355	PI 203094	Japan	Rikuto Toukai No. 32	30	27	43	33.3	10	6	1	7	12	9	2	11	o
1356	PI 202948	Japan	Asahi You	18	7	1	8.6	5	2	0	2	5	1	1	2	
1357	PI 162140	Japan	Suito Norin No. 14	16	2	2	6.6	5	1	0	1	6	0	0	0	
1358	PI 162159	Japan	Yamato Hinode	18	10	3	10.3	3	1	0	1	5	2	0	2	
1359	PI 280002	Italy		7	11	9	9.0	6	1	0	1	9	1	0	1	
1360	PI 224940	Japan	Minori	4	3	3	3.3	1	2	0	2	5	0	0	0	
1361	PI 279983	Italy		13	5	6	8.0	4	0	4	4	6	0	0	0	
1362	CI 6867	Japan		21	4	16	13.6	7	1	0	1	6	0	0	0	
1363	PI 224880	Japan	Norin 50	8	2	4	4.6	2	0	0	0	3	0	0	0	
1364	PI 224907	Japan	Shinano 3	11	12	5	9.3	3	0	0	0	2	0	4	4	
1365	PI 224906	Japan	Shin 7	20	8	11	13.0	7	2	3	5	8	1	2	3	tf
1366	PI 224836	Japan	Kolobukimochi	15	29	26	20.0	9	0	3	3	5	2	5	7	so
1367	PI 162149	Japan	Suiti Norin No. 29	15	14	11	13.3	4	0	2	2	5	0	0	0	so
1368	PI 226192	Japan		16	14	5	11.6	5	0	2	2	8	2	2	4	
1369	PI 134496	Taiwan	Nagabo	13	12	6	10.3	4	1	1	2	6	0	1	1	
1370	CI 6807	Japan		12	15	12	13.0	3	1	0	1	5	0	0	0	
1371	PI 226158	Japan		11	0	0	3.6	1	0	0	0	1	0	0	0	
1372	PI 288548	India		14	6	0	6.6	0	0	0	0	2	0	0	0	
1373	CI 6001		Pandhori No. 4	13	7	4	8.0	3	1	1	2	3	0	0	0	
1374	PI 184506	Japan	Somewake	5	7	14	8.6	1	0	0	0	2	0	0	0	
1375	PI 209520	Italy	Stripe 136	6	9	8	7.6	2	0	1	1	2	0	0	0	
1376	PI 224903	Japan	Dakoku Wase	13	3	4	6.6	2	0	2	2	3	0	0	0	
1377	224901	Japan	Shiga Asahi 27	4	2	1	2.3	1	0	1	1	1	0	0	0	
1378	PI 20300	Japan		13	5	5	7.6	2	0	1	1	3	0	2	2	
1379	PI 162144	Japan	Suito Norin No. 20	15	7	3	8.3	4	2	3	5	9	1	0	1	Fd
1380	PI 224933	Japan	Wase Ashi	5	4	0	3.0	1	0	2	2	2	0	0	0	

Table 2 (cont'd.)

Var. no.	CI or PI no.	Country of Origin	Variety name	Hilo Choice experiment: Weevils counted on each variety 3 days after inf.	6 days after inf.	9 days after inf.	avg. no. of weevils per var.	Weevils emerged: Feeding-damage cum.	Complete	Total	Non-feeding-damage cum.	Complete	Total	Weevils emerged: Non-feeding-damage cum.	Complete	Total	Var. features
1381	CI 9486		Ark Rose x Bbt. 50	10	5	0	5.0	5	0	1	1	7	0	0	0	
1382	PI 226702	Japan	Senbon Awahi	17	5	2	8.0	6	1	2	3	7	0	1	1	
1383	CI 8663		K - D (Ascentic)	17	3	6	8.6	3	0	4	4	3	1	0	1	tf
1384	PI 226793	Japan	Akage	7	5	3	5.0	2	0	0	0	3	0	1	1	
1385	PI 225567	Italy		14	4	2	6.6	4	0	0	0	4	3	4	7	
1386	CI 5783	Japan		20	6	12	12.6	4	0	2	2	7	0	0	0	Fd
1387	PI 291643	Italy		4	11	13	9.3	4	0	0	0	4	0	0	0	
1388	PI 215519	France	Balilla 28	9	8	3	6.6	3	0	0	0	5	0	0	0	
1389	PI 224672	Japan		7	2	4	4.3	3	2	1	3	4	0	0	0	
1390	CI 1344		Fortuna	4	3	0	2.3	1	0	0	0	1	0	0	0	
1391	CI 9584		CP 231 x Bbt.	6	5	1	4.0	3	0	0	0	3	0	0	0	
1392	PI 226166	Japan	Fuziéaka 4	16	7	6	9.6	8	1	6	7	5	0	2	2	tf
1393	PI 226705	Japan	Shinriki Mochi	8	1	0	3.0	2	1	1	2	2	0	1	1	
1394	PI 162100	Japan	Kiuki No. 52	7	4	2	4.3	4	0	0	0	3	0	0	0	
1395	PI 184505	Japan	Shiwazusochi	26	13	27	22.0	3	0	4	4	5	1	3	4	Fd
1396	PI 163339	Korea		8	4	1	4.3	3	1	0	1	3	0	0	0	
1397	PI 226217	Japan	Mubo Aikoku	8	6	11	8.3	3	1	10	11	8	1	4	5	tf, Fd
1398	PI 162365	Korea	Ziok Do	3	3	0	2.0	3	0	0	0	5	0	0	0	
1399	PI 202975	Japan		9	3	7	6.3	2	0	3	3	8	2	3	5	
1400	PI 203989	Japan	Rikuto Kumamoto No. 1	27	37	43	35.6	22	0	1	1	16	0	9	9	o
1401	PI 226185	Japan	Rikuto Norin 14	6	19	29	14.6	10	0	0	0	16	0	1	1	o
1402	PI 202978	Japan	Kushir	9	5	4	6.0	1	1	0	1	2	0	0	0	
1403	PI 224832	Japan	Rikuu 20	9	12	2	7.6	4	1	4	5	3	2	0	2	
1404	PI 226669	Japan	Rikuu	10	5	4	6.3	3	1	0	1	3	0	0	0	
1405	PI 203007	Japan	Shiromochi No. 4	9	3	11	7.6	5	0	0	0	1	0	0	0	

Table 2 (cont.).

Var. no.	CI or PI no.	Country of Origin	Variety name	Free Choice experiment: Weevils counted on each variety: 3 days after inf.	6 days after inf.	9 days after inf.	avg. no. of weevils per var.	Free Choice experiment: Weevils emerged: Feed dam-age	In-com-plete	Com-plete	Total emerg	Non choice exp.: Weevils emerged: Feed dam-age	In-com-plete	Com-plete	Total emerg	Var. feature
1406	*	Japan		8	11	5	8.0	5	0	2	2	5	0	0	0	
1407	PI 162088	Japan	Dosan 54 Higoshi Yama	4	6	1	3.6	0	0	2	2	6	1	0	1	
1408	PI 202990	Japan	Norin No. 22 M 2	10	11	13	11.3	3	1	0	1	4	0	1	1	
1409	PI 222500	Japan	Norin 11	23	20	52	31.6	28	5	14	19	20	9	2	11	o
1410	PI 162221	Korea	Hung To Do	7	4	3	4.6	1	0	0	0	2	0	0	0	
1411	CI 1573	Okinawa		21	12	12	15.0	3	0	2	2	3	1	3	4	
1412	PI 162169	Korea	Baek Huang Zo Kok Kou So	12	6	2	6.6	4	1	0	1	2	1	2	3	
1413	PI 202973	Japan		8	4	3	5.0	4	1	0	1	5	1	0	1	
1414	CI 8101	Japan	Hiderisiraz	11	10	8	9.6	4	0	1	1	7	0	0	0	
1415	PI 162273	Japan	Oe Mut Ge	16	11	17	14.6	6	1	0	1	7	1	3	4	
1416	PI 162309	Korea	Su Won	18	18	14	16.6	8	0	2	2	12	1	5	6	
1417	PI 187162	Korea	Kungain No. 1	8	6	5	6.3	2	0	1	1	4	0	0	0	
1418	PI 231645	Japan	Italica Alef	13	9	2	8.0	2	1	0	1	3	0	0	0	
1419	PI 226195	Japan	Rikuto Kenochi	12	2	4	6.0	3	0	1	1	5	0	0	0	
1420	PI 215522	Japan	Sesia	14	9	8	10.3	5	2	0	2	8	1	1	2	
1421	CI 6871	France	Benkei No. 1	7	17	19	14.3	4	1	0	1	16	2	6	8	so
1422	PI 224795	Japan	Asahi 1	9	3	2	4.6	1	0	0	0	2	0	0	0	
1423	PI 224889	Japan	Rikuto Norin 9	34	32	33	36.3	26	3	1	4	14	6	9	15	o
1424	PI 162194	Japan	Du Do	4	6	2	4.0	1	1	0	1	2	0	0	0	
1425	PI 203092	Korea	Rikuto Sanin No. 25	10	5	3	6.0	4	0	2	2	6	0	0	0	
1426	PI 162324	Japan	Su Won	19	11	11	13.6	4	2	1	3	7	0	5	5	tf
1427	PI 203060	Korea		8	8	9	8.3	4	0	1	1	5	0	0	0	
1428	PI 224091	Japan	Rikuto Nori 24	11	1	4	5.3	0	0	0	0	0	0	0	0	

*The Plot No. at Stuttgart, Arkansas in 1964 was 719 and the 1962 W.C. List No. 001500

Table 2 (cont.).

Var. no.	CI or PI no.	Country of Origin	Variety name	Free Choice experiment: Weevils counted on each variety: 3 days after inf.	6 days after inf.	9 days after inf.	Avg. no. of weevils per var.	Weevils emerged: Feeding damage	Incomplete	Complete	Total	Non choice exp.: Weevils emerged: Feeding damage	Incomplete	Complete	Total	Var. features
1429	PI 162361	Korea	Ue Go	7	2	5	4.6	1	0	0	0	4	0	0	0	
1430	CI 5761	Japan	Fukuyama	6	10	24	13.3	9	1	2	3	10	0	0	0	lo
1431	CI 1561	Japan	Wataribune	7	16	12	11.6	8	0	0	0	8	0	0	0	
1432	PI 231669	Japan	Helemothrida Alef	2	7	5	4.6	1	0	0	0	5	0	0	0	
1433	PI 162197	Korea	Duk Zik Zodo	4	0	0	1.3	1	0	0	0	0	0	0	0	
1434	PI 162221	Korea	Ok Chai	26	23	17	22.0	10	1	0	1	4	1	8	9	tf
1435	PI 162179	Japan	Suita Nozin No. 1	13	10	5	9.3	2	1	0	1	5	0	0	0	
1436	PI 162314	Korea	Sa Won	9	4	3	5.3	2	0	1	1	6	1	0	1	
1437	PI 220197	Japan	Rikuto Kumamoto 1	29	51	47	42.3	31	5	3	8	23	6	15	21	m, fd
1438	PI 224861	Japan		12	6	3	7.0	2	0	1	1	5	0	1	1	
1439	PI 162267	Korea	Nam Zo	12	13	20	15.0	6	2	1	3	3	1	1	2	tf
1440	PI 162076	Japan	Airoke 1	6	6	11	7.6	6	0	0	0	7	0	0	0	
1441	PI 162059	Japan	Doman 57	11	12	10	11.0	2	1	1	2	5	0	0	0	
1442	PI 207985	Japan	Norin No. 6	10	9	12	10.3	4	0	0	0	4	0	0	0	
1443	PI 207956	Japan	Gin Bozu Mutsuhi	9	5	8	7.3	3	0	0	0	5	0	0	0	
1444	CI 6338	Japan		8	11	5	8.0	3	1	0	1	5	0	0	0	
1445	PI 162366	Korea	Zioh Do	4	8	20	10.6	4	1	1	2	9	0	0	0	fd
1446	PI 162364	Korea	Zioh Do	6	9	7	7.3	2	0	3	3	4	0	0	0	
1447	PI 162211	Korea	Honsu Jin Do	5	1	4	3.3	0	1	0	1	1	0	0	0	
1448	PI 203083	Japan	Shimotuki	8	9	5	7.3	1	0	1	1	1	0	0	0	
1449	PI 162220	Korea	Kwang Ju	13	12	7	10.6	1	1	0	1	2	1	1	2	
1450	PI 162233-1	Korea	Jin Mok	7	6	11	8.0	2	0	1	1	6	1	0	1	
1451	PI 162342	Korea	Ung Zhong	6	14	0	6.6	4	0	0	0	2	1	0	1	
1452	CI 6608	Japan		17	8	11	12.0	4	0	2	2	7	2	1	3	tf, fd
1453	PI 231934	Korea	Jokwang	17	6	4	9.0	4	1	0	1	6	1	2	3	

Table 2 (cont.).

Var. no.	CI or PI no.	Country of Origin	Variety name	Free Choice experiment: Weevils counted on each variety: 3 days after inf.	6 days after inf.	9 days after inf.	avg. no. of weevils per var.	Free Choice experiment: Weevils emerged: Feed damage	Incomplete	Complete	Total emerg	Non choice exp.: Weevils emerged: Feed damage	Incomplete	Complete	Total emerg	Var. feature
1454	PI 202966	Japan	Kamegi	11	5	16	10.6	2	0	0	0	4	0	0	0	
1455	PI 162107	Japan	Kyonggi 51	8	3	3	4.6	0	0	0	0	0	0	0	0	
1456	PI 226213	Japan	Tozan 38	12	15	17	14.6	4	0	1	1	3	0	0	0	
1457	PI 162166	Korea	Baek Chung Do No. 2 Hak Sni Dou	13	9	7	9.6	4	1	1	2	9	0	1	1	
1458	PI 224849	Japan	Nawashiro Ine 22	9	15	16	13.3	5	0	1	1	2	1	4	5	
1459	PI 215462	Italy	Raza 77	6	4	13	7.6	2	0	1	1	4	0	0	0	
1460	PI 226183	Japan	Rikuto Norin 11	21	53	86	53.3	52	1	5	6	33	9	24	33	o
1461	CI 5662	Japan	Kinai Early No. 70	2	7	0	3.0	1	0	1	1	1	0	0	0	
1462	PI 162145	Japan	Suito Narin No. 22	7	2	1	3.3	6	0	1	1	2	1	1	2	
1463	CI 6606	Japan		4	3	5	4.0	0	0	0	0	1	0	0	0	
1464	PI 224851	Japan	Norin 5	3	3	3	3.0	0	0	0	0	4	0	0	0	
1465	PI 226193	Japan	Rikuto Jimiki 1	6	1	3	3.3	0	0	0	0	2	0	0	0	
1466	PI 243009	Japan	Takao Mochi	2	6	4	4.0	1	0	0	0	2	0	0	0	
1467	PI 226215	Japan	Yutaka Senbon	5	4	3	4.0	3	0	0	0	4	0	0	0	
1468	PI 224867	Japan	Rikuto Norin 1	33	55	49	45.6	31	1	1	2	15	3	8	11	o
1469	PI 187093	Japan		11	12	5	9.3	3	2	1	3	2	0	0	0	
1470	PI 162085-1	Japan	Dosan 50	23	24	33	26.6	17	0	1	1	7	0	0	0	so
1471	PI 162319	Korea	Su Won	11	7	7	8.3	1	0	0	0	6	0	1	1	
1472	PI 202971	Japan	Kinki No. 25	8	8	5	7.0	2	1	0	1	2	0	0	0	
1473	PI 162083	Japan	Dosan 41	2	0	4	2.0	1	0	0	0	0	0	0	0	
1474	PI 224802	Japan	Chu Kan	10	18	3	10.3	8	0	0	0	9	1	0	1	
1475	CI 8579	Korea	Wase Shinshu	9	7	7	7.6	4	0	1	1	8	0	2	2	so
1476	PI 202980	Japan	Hatuyama Owachi	6	5	3	4.6	4	0	0	0	2	0	0	0	
1477	PI 204291	Japan		1	3	1	1.6	0	0	0	0	1	0	0	0	

Table 2 (cont.).

Var. no.	CI or PI no.	Country of Origin	Variety name	Free Choice experiment: Weevils counted on each variety: 3 days after inf.	6 days after inf.	9 days after inf.	avg. no. of weevils per var.	Weevils emerged: Feeding damage	Con plate	Cup plate	Total	Non choice exp.: Weevils emerged: Feeding damage	Con plate	Cup plate	Total	Var. feeding
1478	PI 162332	Korea	Su Woo	3	4	1	2.6	1	0	1	1	0	0	0	0	
1479	PI 162310	Korea	Su Won	5	12	5	7.3	4	1	1	2	4	0	0	0	
1480	PI 162200	Korea	Gang Won Do Do	17	13	6	12.0	4	0	0	0	3	0	0	0	
1481	CI 6667	Korea	Ton	5	4	4	4.3	0	0	0	0	2	0	0	0	
1482	CI 6676	Korea	Wase Sekitorn	16	19	12	16.3	3	0	0	0	2	0	0	0	
1483	PI 226303	Japan	Sen Ichi	7	3	5	5.0	5	0	0	0	5	1	2	3	
1484	PI 226626	Japan	Honakae	5	3	3	3.6	2	0	0	0	3	0	0	0	
1485	PI 142078	Japan	Eyoko	10	8	3	10.3	3	0	0	0	7	0	1	1	
1486	CI 6500	Japan		4	3	5	4.0	1	0	0	0	1	0	0	0	
1487	PI 226856	Japan	Norin 10	5	7	4	5.3	1	0	1	1	4	1	0	1	
1488	PI 202936	Japan	Norin No. 8	9	3	3	5.0	3	0	1	1	4	0	0	0	
1489	PI 202953	Japan	Dokei Sinriki	7	7	3	5.6	5	0	1	1	6	0	0	0	
1490	PI 202909	Japan	Norin No. 18 1, 31	4	2	2	2.6	1	0	0	0	0	0	0	0	
1491	PI 162217-1	Korea	Dae Do	6	10	2	6.0	2	2	1	3	2	0	0	0	Bad
1492	PI 162301	Korea	Zo Seongpuhong Ju	3	4	5	4.0	1	0	1	1	4	0	0	0	
1493	PI 226196	Japan	Kikuto Kirishiro	21	36	57	38.0	10	1	2	3	13	6	5	11	*
1494	PI 224655	Japan	Fusinishiki	11	15	19	15.0	13	0	0	0	6	1	0	1	**
1495	PI 202963	Japan	Joen No. 1	7	7	4	6.0	4	0	0	0	1	0	0	0	
1496	PI 215321	Taiwan	Shinchiku No. 50	9	7	8	8.0	3	0	0	0	3	0	0	0	
1497	PI 226293	Japan	Akage	15	11	6	10.6	2	0	0	0	3	1	0	1	
1498	PI 226191	Japan	Kikuto Norin Mochi 26	12	12	6	10.0	3	1	1	2	4	1	1	2	
1499	PI 162198	Korea	Gang Do Do	5	2	5	4.0	1	0	1	1	0	0	0	0	
1500	PI 202961	Japan	Iyo Sentoku	8	11	9	9.3	5	1	2	3	5	0	1	1	
1501	PI 184097	Japan	Fujisaki No. 3	4	4	3	3.6	3	0	0	0	2	0	0	0	
1502	PI 202954	Japan	Kakam Rafto	8	2	5	5.0	0	0	0	0	2	1	0	1	

Table 2 (cont.).

Table 2 (cont.).

Var. no.	CI or PI no.	Country of Origin	Variety name	Free Choice experiment: Weevils counted on each variety: 3 days after inf.	6 days after inf.	9 days after inf.	avg. no. of weevils per var.	Free Choice experiment: Weevils emerged: Feeding damage	Complete	Complete	Total	Non choice exp.: Weevils emerged: Feeding damage	Complete	Complete	Total	Var. feature
1503	PI 202959	Japan	Heitaibo	11	11	2	8.0	4	0	0	0	3	0	0	0	
1504	PI 210012	Japan	Turngi	3	2	1	2.0	3	0	3	3	2	0	1	1	
1505	PI 234655	Japan	Tominishiki	14	31	26	23.6	16	0	1	1	22	10	8	18	o
1506	PI 231641	Japan	Amaura Aicf	1	3	4	2.6	0	0	2	2	5	0	0	0	
1507	PI 162210	Korea	Hae	11	12	2	8.3	4	0	3	3	5	0	0	0	
1508	PI 162175	Korea	Bok Bang Zo	13	13	7	11.0	7	0	0	0	4	0	1	1	
1509	PI 234678	Japan	Norin 48	17	8	15	13.3	8	0	1	1	7	0	0	0	
1510	PI 162272	Korea	Ok Kyong Zo	8	7	5	6.6	1	0	0	0	1	0	0	0	
1511	CI 6355	Japan		10	19	16	15.0	8	0	0	0	7	0	2	2	tf
1512	PI 162204	Korea	Gudo	7	5	2	4.6	5	0	0	0	3	0	0	0	
1513	PI 226206	Japan	Shuho	4	6	9	6.3	1	0	0	0	4	0	0	0	
1514	PI 162305	Korea	Su Won	9	6	5	6.6	3	0	0	0	3	0	0	0	
1515	PI 202956	Japan	Hatushimo L I	6	3	0	3.0	0	0	1	1	4	0	0	0	
1516	PI 162174	Korea	Biong Zo	16	41	8	21.6	8	2	3	5	6	3	10	13	tf
1517	PI 162106	Japan	Kiuki No. 50	2	1	4	2.3	0	0	0	0	1	0	0	0	
1518	PI 162278	Korea	Pung Ok	32	44	48	41.3	21	2	5	7	9	2	7	9	o
1519	CI 2303	Japan	Miyako	7	4	8	6.3	3	0	0	0	1	0	0	0	
1520	PI 291633	Japan		9	2	1	4.0	3	0	1	1	2	0	0	0	
1521	CI 6078	Korea	Wase Sekitoro E.	3	11	2	5.3	1	2	0	2	3	0	0	0	
1522	PI 162165-1	Korea	Baek Chun Sira Tong	8	17	11	12.0	5	1	1	2	6	1	2	3	
1523	PI 162161	Korea	Ae Dae Ai Tachi	21	13	14	16.0	1	0	0	0	5	0	0	0	
1524	PI 162254	Korea	Mit Dori	16	8	7	10.3	2	0	0	0	0	0	0	0	
1525	PI 162301	Korea	Su Won	17	20	12	13.0	10	0	0	0	2	1	1	2	
1526	PI 226102	Japan	Kikuto Norin 6	31	41	19	30.3	11	0	2	2	17	2	2	4	o
1527	PI 274425	India		13	11	3	9.0	1	1	0	1	3	0	0	0	

Table 2 (cont.).

Var. no.	CI or PI no.	Country of Origin	Variety name	Free Choice experiment: Weevils counted on each variety: 3 days after inf.	6 days after inf.	9 days after inf.	avg. no. of weevils per var.	Weevil emerged: Feeding damage	Incom-plete	Com-plete	Total	Non choice exp.: Weevils emerged: Feeding damage	Incom-plete	Com-plete	Total	Var. features
1528	PI 226072	Japan	Nagami Mochi	11	21	13	15.0	4	0	1	1	4	0	0	0	
1529	PI 2303-2	Japan		14	11	19	14.6	4	0	0	0	5	0	0	0	
1530	CI 7150	Japan	Akaho	10	2	6	6.0	1	0	0	0	5	0	0	0	
1531	CI 6550	Japan	Haya Shirazikl	8	7	12	9.0	5	0	1	1	4	0	0	0	
1532	PI 226175	Japan	Koganemaru	23	10	6	13.0	4	0	1	1	8	0	0	0	
1533	PI 226066	Japan	Mozusaki Akyonetsu Ino	20	13	13	15.3	5	0	1	1	5	0	0	0	TJ
1534	PI 162107	Japan	Kyonggi 51	15	15	12	14.0	11	0	2	2	9	0	0	0	
1535	PI 231645	Japan	Bogonfou Abecl	10	13	13	12.0	2	0	0	0	2	0	1	1	
1536	PI 226092	Japan	Rikuto Norin 9	16	22	16	18.6	11	1	3	4	17	3	8	11	e
1537	PI 202980	Japan	Hikari	22	25	12	19.6	4	0	0	0	4	0	0	0	
1538	PI 226169	Japan	Rikuto Norin 20	13	9	7	9.6	1	0	0	0	3	0	0	0	
1539	PI 162306	Korea	Sa Woo	34	19	16	26.3	11	3	2	5	4	2	2	4	tf, td
1540	PI 167315	Korea	Sa Woo	33	33	52	39.3	4	1	4	5	6	0	2	2	tf, td
1541	CI 8103-1	Japan	Hoshaidorot	12	11	17	13.3	1	1	0	1	9	0	1	1	
1542	PI 182340	Korea	Kok Si Yiem Jo	19	13	5	12.3	4	0	0	0	7	1	1	2	
1543	PI 202964	Japan	Joyo Mimori	8	1	2	3.6	2	0	0	0	4	0	0	0	
1544	PI 275441	Italy		7	17	8	10.6	4	0	0	0	2	0	0	0	
1545	PI 226820	Japan	Hiroi 1	24	39	35	32.6	10	0	5	5	10	1	4	5	tf, td
1546	PI 215521	France	Rinaldo Bersani	17	13	28	19.3	7	0	0	0	4	0	1	1	
1547	PI 226104	Japan	Rikuto Kahei	26	52	47	41.6	12	0	0	0	14	1	2	3	e
1548	PI 226814	Japan	Hatsushimo	11	17	31	19.6	3	0	0	0	5	0	1	1	
1549	CI 8568	Korea	Tamo Mochi No. 6	28	44	51	41.0	18	1	0	1	10	1	0	1	e
1550	CI 9390		CI 9214 x CI 251 - CI 9172	12	27	7	15.3	0	0	0	0	1	0	0	0	
1551	PI 226100	Japan	Rikuto Shirahigi	53	69	42	54.6	27	2	3	5	16	5	9	14	e
1552	PI 226906	Japan		17	9	5	10.3	5	1	5	6	4	0	2	2	

Table 2 (cont.).

Table 2 (cont.).

Var. no.	Cl or PI no.	Country of Origin	Variety name	Free Choice experiment: Weevils counted on each variety: 3 days after inf.	6 days after inf.	9 days after inf.	avg. no. of weevils per var.	Free Choice experiment: Weevils emerged: Feed damage	In-complete	Com-plete	Total emerg	Non choice exp.: Weevils emerged: Feed damage	In-complete	Com-plete	Total emerg	Var. feature
1553	PI 224849	Japan	Nawashiro Inc 22	27	32	23	27.3	6	0	1	1	2	2	4	6	Fd
1554	PI 209774	Italy	Rizzotto Tipo	23	23	29	25.0	4	0	3	3	5	0	1	1	
1555	PI 162284	Korea	Sel Bio No. 10	10	5	23	12.6	6	0	1	1	3	0	3	3	
1556	PI 234256	Korea	Kwangfu I	4	7	5	5.3	2	0	3	3	6	0	3	3	
1557	PI 203010	Japan		6	4	8	6.0	3	0	0	0	3	0	0	0	
1558	Cl 8048-1	Korea		3	6	9	6.0	5	0	0	0	6	1	0	1	
1559	226199	Japan	Rikuto Terishirazu	7	7	13	9.0	5	1	0	1	4	2	1	3	
1560	PI 162323	Korea	Su Won	8	17	34	19.6	8	0	2	2	6	2	6	8	so
1561	PI 224869	Japan	Norin 29	8	13	33	18.0	3	1	5	6	3	0	2	2	Fd
1562	PI 162099	Japan	Kiuki No. 46	9	31	72	37.3	10	2	6	8	7	1	7	8	Fd
1563	PI 224852	Japan	Noun 6	51	25	37	37.6	7	0	1	1	9	3	5	8	tf, Fd
1564	PI 203005	Japan	Shinriki	4	11	6	7.0	3	0	2	2	3	0	0	0	
1565	PI 226216	Japan	Zennoo	36	27	16	26.3	7	2	2	4	5	2	4	6	
1566	PI 202983	Japan	Nakuraho	3	15	11	9.6	2	0	0	0	1	0	0	0	
1567	PI 203091	Japan	Rikuto Nourin No. 26	29	31	34	31.3	26	1	0	1	15	10	8	18	o
1568	PI 162253	Korea	Mau Do	32	43	55	43.3	25	0	4	4	16	7	9	16	o
1569	PI 162108	Japan	Kyoto Wase	15	14	29	19.3	2	1	4	5	5	1	4	5	Fd
1570	PI 224801-1	Japan	Chikanari 2	8	4	5	5.6	2	1	0	1	4	0	0	0	
1571	PI 162348	Korea	Won Son Zo	10	10	18	9.3	12	0	1	1	7	2	5	7	Fd
1572	PI 202981	Japan	Mii	4	6	8	6.0	1	0	0	0	5	1	1	2	
1573	PI 231646	Japan		28	13	20	20.3	6	0	0	0	5	1	8	9	tf
1574	PI 162216	Korea	Huang Dai Kal Bio	13	7	23	14.3	0	0	0	0	4	0	2	2	
1575	PI 202992	Japan	Norin No. 26 L 4	13	15	11	13.0	3	0	0	0	2	0	0	0	
1576	PI 162266	Korea	San Du Do	9	12	16	12.3	3	0	0	0	4	2	1	3	
1577	PI 202951	Japan	Chykyo Asahi	15	18	6	13.0	4	0	0	0	3	0	0	0	

Table 3 (cont.)

Var. no.	CI or PI no.	Country of Origin	Variety name	Free Choice experiment: Weevils counted on each variety: 3 days after inf.	6 days after inf.	9 days after inf.	avg. no. of weevils per var.	Weevils counted: Feeding-damage	Weevils counted: Cocoons	Weevils counted: Total	Non choice exp.: Weevils counted: Feeding-damage	Non choice exp.: Weevils counted: Cocoons	Non choice exp.: Weevils counted: Total	Var. feature
1578	PI 239071	Japan	Bei Shi Fo	9	11	31	17.0	5	0	4	4	6	2	3	5	fol
1579	PI 251654	Japan		8	5	9	7.3	1	0	0	0	2	0	5	5	
1580	PI 236855	Japan	Norin 11	7	5	6	6.0	4	0	0	0	1	0	0	0	
1581	PI 431935	Korea	Peitel	9	3	8	6.6	5	2	0	2	7	1	3	4	
1582	PI 236860	Japan		11	6	12	9.6	5	0	2	2	1	0	0	0	
1583	PI 231935	Korea	Pilkwang	4	7	5	5.3	1	1	1	2	4	0	4	4	
1584	PI 209986	Japan	Eiusi	13	35	23	23.6	12	0	2	2	9	4	7	11	so-
1585	PI 276472	India		14	16	19	16.3	8	0	0	0	4	1	2	3	
1586	PI 236859	Japan	Norin 17	17	17	29	21.0	3	0	3	3	4	2	3	5	
1587	PI 236867	Japan	Futmikawa	11	6	33	16.6	1	0	1	1	3	1	2	3	
1588	PI 236862	Japan	Obanzaraw 1	21	18	21	20.0	2	1	0	1	1	0	0	0	
1589	PI 226181	Japan		23	15	11	16.3	5	0	0	0	2	0	1	1	
1590	PI 236207	Japan	Somesake	13	9	9	10.3	5	1	0	1	4	4	3	7	tf, green
1591	PI 209966	Japan	Asahi	7	13	17	12.3	3	0	0	0	6	0	0	0	
1592	PI 162238	Korea	Jung Do Do	12	12	2	8.6	5	0	4	4	4	0	3	3	fol
1593	PI 231644	Japan	Dichiou Pat	11	15	8	11.3	4	3	1	4	4	0	2	2	
1594	PI 215483	Italy	Rinaldo Berassi	8	2	2	4.0	1	1	0	1	1	0	2	2	
1595	PI 209963	Japan	Aichi Asahi	13	9	19	13.6	4	0	0	0	4	1	3	4	
1596	PI 162241	Korea	Eulam Do	21	13	26	20.0	5	1	5	6	5	2	11	13	tf, fo
1597	PI 162316	Korea	Su Won	6	12	16	11.3	4	1	1	2	4	2	3	5	
1598	PI 275465	Italy		5	3	16	8.0	3	1	1	2	1	2	6	8	
1599	PI 226168	Japan	Rikuto Norin 18	5	8	18	10.3	4	0	0	0	3	0	4	4	
1600	PI 226793	Japan	Ayashi 1	12	9	19	16.0	4	0	0	0	8	0	3	3	
1601	PI 231936	Korea	Saw Sad	15	14	9	12.6	4	0	0	0	2	0	0	0	
1602	PI 226866	Japan	Norin 22	9	12	11	10.6	2	0	1	1	2	0	0	0	
1603	PI 162135	Japan	Suito Norin No. 7	11	7	4	7.3	1	0	0	0	2	1	0	1	

Table 3 (cont.)

Table 2 (cont.).

Var. no.	CI or PI no.	Country of Origin	Variety name	Free Choice experiment: Weevils counted on each variety: 3 days after inf.	6 days after inf.	9 days after inf.	avg. no. of weevils per var.	Free Choice experiment: Weevils emerged: Feed	In-dam-age	Com-plete	Com-plete	Total emerg	Non choice exp.: Weevils emerged: Feed	In-dam-age	Com-plete	Com-plete	Total emerg	Var. feature
1604	PI 224867	Japan	Norin 25	13	19	11	14.3	10	0	2	2	4	1	3	4		Fd
1605	PI 279982	Italy		6	4	6	5.3	1	0	0	0	4	0	0	0		
1606	PI 202952	Japan	Chusei Asahi	2	10	10	7.3	5	0	0	0	5	0	0	0		
1607	PI 291480	Hungary		5	15	9	9.6	2	1	0	1	3	0	0	0		
1608	PI 162312	Korea	Su Won	4	22	17	14.3	3	1	0	1	5	0	0	0		Fd
1609	PI 162232	Korea	Ji Hang Do	13	29	31	17.6	9	5	8	13	13	5	1	6		so, Fd
1610	PI 162330	Korea	Su Won	12	21	35	22.6	19	0	0	0	10	3	3	6		Fd
1611	CI 5-3	Japan		8	7	20	11.6	1	1	0	1	2	0	0	0		
1612	PI 162262	Korea	No Do	7	6	27	13.3	7	2	0	2	11	0	0	0		
1613	PI 162387	Korea	Zyouk Sin Ryouk	8	7	28	14.3	2	0	1	1	6	0	0	0		
1614	PI 162307	Korea	Su Won	41	56	43	46.6	6	0	2	2	9	4	3	7		Fd
1615	PI 231937	Korea	Poono Ok	5	11	2	6.0	1	0	0	0	4	0	0	0		
1616	PI 197397	Japan	Rikuu 132	4	6	11	7.6	2	0	0	0	6	0	0	0		
1617	PI 226176	Japan	Koshiji Wase	3	0	6	3.0	1	0	0	0	5	0	1	1		
1618	PI 162303	Korea		24	22	33	26.3	12	1	1	2	8	1	7	8		
1619	PI 224847	Japan	Naguraho	5	9	19	11.0	2	0	0	0	2	0	0	0		
1620	PI 202984	Japan	Norin No. 2 L 19	9	10	11	10.0	4	0	0	0	8	0	0	0		
1621	PI 226201	Japan	Sekitori	18	5	9	10.6	3	1	1	2	8	2	3	5		
1622	PI 224908	Japan	Shinamo Mochi 3	16	11	8	11.6	5	1	1	2	6	1	1	2		
1623	CI 2296	Japan	Dokai	13	22	34	23.0	7	0	0	0	6	0	0	0		so
1624	CI 6782	Japan	Iio Benkei No. 2	9	1	30	13.3	1	0	2	2	5	1	0	1		
1625	PI 162320	Korea	Su Won	16	15	9	13.3	2	0	1	1	2	0	0	0		
1626	PI 202967	Japan	Kikusui	11	13	8	10.6	6	0	0	0	3	0	0	0		
1627	PI 224844	Japan	Murasaki Ine	15	16	14	15.0	5	0	1	1	3	2	3	5		
1628	CI 8875	Korea	Wase Sekitoro	12	14	10	12.0	5	3	0	3	6	1	0	1		so
1629	CI 8884	Korea	Yang Chal Byo	3	7	4	4.6	1	0	0	0	2	0	0	0		

Table 2 (cont.).

Var. no.	CI or PI no.	Country of Origin	Variety name	Free Choice experiment: Weevils counted on each variety: 3 days after inf.	6 days after inf.	9 days after inf.	avg. no. of weevils per var.	Weevils emerged: Feeding	Incomplete	Complete	Total	Non choice exp.: Weevils emerged: Feeding	Incomplete	Complete	Total	Var. features
1630	PI 162307	Korea	Su Won	18	17	22	19.0	7	1	3	4	3	4	4	8	
1631	PI 202883	Japan	Norin No. 27	6	15	27	16.0	8	0	2	2	6	1	1	2	
1632	CI 8563	Korea	Tochi Ki Tsune Rikuto No. 1	4	7	12	7.7	3	0	0	0	3	0	0	0	
1633	PI 162288	Korea	Ball Sall Do	5	6	11	7.3	3	1	1	2	2	0	0	0	
1634	PI 224974	Japan	Norin 37	5	8	12	8.3	3	1	1	2	4	2	0	2	Rd
1635	PI 162305	Korea	Su Won	11	11	29	17.0	7	2	2	4	6	3	4	7	Rd
1636	CI 6873	Japan	Gimbozu	4	21	38	21.0	6	0	5	5	8	2	9	11	tf, Rd
1637	PI 226200	Japan	Sakai Kaneko	13	13	23	16.3	5	0	1	1	4	2	0	2	
1638	CI 8105-2	Japan		15	25	36	25.3	9	0	1	1	8	1	1	2	
1639	PI 162171	Korea	Baek Kiong Zo	6	12	1	6.3	1	0	0	0	2	0	0	0	
1640	PI 224622	Japan	Hirayama	17	36	37	30.0	9	0	0	0	4	3	1	4	
1641	PI 202949	Japan	Bankei	9	13	12	11.3	3	0	0	0	5	1	0	1	
1642	PI 224601	Japan	Chikanari 2	5	12	5	7.3	2	0	1	1	4	0	0	0	
1643	PI 162128-1	Japan	Sinriki No. 1	10	13	10	11.0	9	1	0	1	10	0	0	0	
1644	PI 162236	Korea	Jung Do Do	7	11	6	8.0	3	0	3	3	6	0	0	0	Rd
1645	CI 8860	Korea		5	7	6	6.0	2	0	0	0	1	0	0	0	
1646	CI 8885	Korea	Yung Chong Omochi	9	9	12	10.0	3	0	2	2	5	0	0	0	
1647	PI 226179	Japan	Norin 9	31	51	53	45.0	26	2	3	5	13	7	11	18	c
1648	PI 162339	Korea	Un Gu	3	5	23	10.3	1	1	1	2	5	0	1	1	
1649	PI 162286	Korea	Sal Bio	28	43	49	40.0	19	1	5	6	10	7	11	18	o
1650	PI 202974	Japan	Kotengu	15	11	41	22.3	4	1	0	1	2	0	0	0	
1651	PI 224883	Japan	Obu So	16	17	12	15.0	1	1	0	1	3	0	0	0	
1652	PI 162196	Korea	Du Jung Zyong	14	11	9	11.3	5	2	2	4	3	0	0	0	
1653	PI 162302	Korea	Su Won	10	13	7	10.0	2	1	0	1	4	0	1	1	ao

Table 2 (cont.).

Var. no.	CI or PI no.	Country of Origin	Variety name	Free Choice experiment: Weevils counted on each variety: 3 days after inf.	6 days after inf.	9 days after inf.	avg. no. of weevils per var.	Free Choice experiment: Weevils emerged: Feed-dam-age	In-com-plete	Com-pletee	Total emerg	Non choice exp.: Weevils emerged: Feed-dam-age	In-com-plete	Com-pletee	Total emerg	Var. feature
1654	PI 224856	Japan	Norin 12	11	4	0	5.0	2	1	0	1	8	0	0	0	
1655	PI 202957	Japan	Haginomaemochi	6	12	9	9.0	3	1	0	1	9	0	0	0	
1656	PI 202945	Japan	Asahi	4	5	8	5.6	2	1	0	1	6	0	0	0	
1657	PI 224889	Japan	Rikuto Norin 9	16	32	44	30.6	24	2	2	4	16	2	0	2	o
1658	PI 162366	Korea	Ziok Do	11	7	7	8.3	4	1	1	2	3	2	0	2	
1659	PI 224817	Japan	Hayashio	9	12	16	12.3	4	0	0	0	4	0	0	0	
1660	PI 162276	Korea	Pal Tao	12	11	21	14.6	4	1	0	1	6	0	0	0	
1661	PI 226207	Japan	Somewake	9	16	23	16.0	5	0	0	0	5	0	1	1	
1662	PI 162340	Korea	Un Gu	4	6	14	8.0	4	1	0	1	10	0	0	0	
1663	PI 224885	Japan	Omachi	10	14	23	15.6	5	0	1	1	7	5	4	9	tf
1664	PI 162074	Japan	Airoka 1	17	34	10	20.3	4	2	1	3	6	0	0	0	
1665	PI 162165	Korea	Baek Chun Sira Kona	22	41	43	35.3	9	4	0	4	3	0	0	0	Fd
1666	PI 231642	Japan	Caucasica Bat	3	3	4	3.3	1	0	0	0	5	0	0	0	
1667	PI 226214	Japan		5	4	18	9.0	4	0	0	0	2	0	0	0	
1668	PI 162168	Korea	Baek Hae Dal Hak Kai Dacqu No. 142	2	12	1	5.0	0	0	0	0	5	0	0	0	
1669	PI 162278	Korea	Pung Ok	4	10	10	8.0	5	0	1	1	3	0	1	1	
1670	PI 162275	Korea	Pal Kweng	12	32	35	26.3	14	3	2	5	14	2	9	11	o, Fd
1671	PI 224834	Japan	Kinugasa Wase 121	10	16	22	16.0	4	1	0	1	6	1	0	1	
1672	PI 224804	Japan	Fukoku	5	11	13	9.6	5	0	0	0	7	0	2	2	so
1673	PI 184499	Japan	Fujisaki No. 5	8	3	13	8.0	2	0	0	0	2	0	2	2	
1674	PI 224873	Japan	Norin 36	7	8	45	20.0	5	1	0	1	5	0	1	1	so
1675	PI 281473-2	Italy		12	12	31	18.3	4	0	1	1	5	0	0	0	
1676	PI 224890	Japan	Rikuto Norin 19	7	15	10	10.6	3	1	2	3	4	0	0	0	
1677	PI 162325	Korea	Su Won	21	23	17	20.3	6	0	0	0	7	0	0	0	Fd

Table 2 (cont.).

Var. no.	CI or PI no.	Country of Origin	Variety name	Free Choice experiment: Weevils counted on each variety 3 days after inf.	6 days after inf.	9 days after inf.	avg. no. of weevils per var.	Weevils emerged: Resistant-damaged	Resistant-complete	Susceptible-damaged	Susceptible-complete	No choice exp.: Weevils emerged: Resistant-damaged	Resistant-complete	Susceptible-damaged	Susceptible-complete	Var. tested
1678	PI 169163	Korea	Ae Cuk Do Ai Kolay Deu	12	9	2	7.6	4	1	0	1	6	1	1	2	
1679	PI 270055	Japan	Norin 11	10	6	3	6.3	5	1	0	1	5	0	0	0	
1680	PI 162350	Korea	Yio Bio	16	20	21	19.0	9	0	0	0	10	3	2	5	Id
1681	PI 231643	Japan	Dobrynskii Korn	5	3	6	4.6	1	0	0	0	6	0	0	0	
1682	PI 162381	Korea	Zo Saengganbang Ju	3	5	4	4.0	1	0	0	0	5	1	1	2	grass
1683	PI 162269	Korea	Sang Do	36	64	65	55.6	42	0	3	3	10	19	16	35	o
1684	PI 279965	Italy		5	6	9	6.6	5	1	1	2	5	0	1	1	Id
1685	PI 291474	Hungary		2	0	7	3.0	4	0	0	0	3	0	0	0	
1686	PI 210391	Korea	Pungok	10	0	8	6.0	2	0	0	0	5	0	1	1	
1687	PI 282600	Japan		5	9	18	10.6	1	0	0	0	2	0	0	0	
1688	PI 162327	Korea	Su Won	43	33	72	49.3	14	1	2	3	12	7	6	13	o, Id
1689	PI 226154	Japan	Aichi Asahi	17	14	19	16.6	2	0	1	1	5	0	0	0	
1690	PI 231653	Japan	Vulgaris Korn	14	24	20	19.3	5	3	0	3	3	0	7	7	
1691	PI 162127	Japan	Snix Asai	16	13	19	16.0	6	0	0	0	11	1	0	1	
1692	PI 274471	India		13	9	9	10.3	3	0	0	0	5	0	0	0	
1693	CI 8312	U.S.A. Ark.	Asahi	7	16	23	15.3	7	0	0	0	4	0	0	0	
1694	PI 167064	Japan		8	15	19	14.0	7	0	0	0	9	1	0	1	so
1695	PI 224397	Japan	Sanuki Shinriki	9	17	16	14.0	3	0	1	1	4	0	0	0	
1696	PI 248531	Italy		5	9	15	9.6	5	0	0	0	4	0	0	0	
1697	PI 224392	Japan	Rikuu 20	15	11	14	13.3	7	2	0	2	3	1	2	3	Id
1698	PI 162234	Korea	Fang Zo	11	23	15	16.3	4	2	0	2	8	1	4	5	Id
1699		Brazil	Dourado Precoce	14	13	31	19.3	3	0	1	1	6	2	0	2	so
1700		Brasil	Iguape Agulha	10	14	23	15.6	3	0	0	0	4	0	0	0	

broken hulls or hulled kernels have a tf in Table 2. The symbol tf was used because it is the recommended genetic symbol for ease of dehulling (Chang, 1964). It is not meant however that all the varieties with a tf in Table 2 have this single recessive gene. The tf here means that the particular variety sample observed had many kernels with broken hulls or hulled kernels.

It was noticed that growth of fungus on the husk favored the feeding of adult weevils in many varieties. The weevils were never noticed to drill through the husk of any variety from outside into the kernel. They were commonly seen trying to bore through the husk for five or ten seconds but generally moved on afterwards. However when there was a patch of fungus, on an otherwise sound husk, one or more holes through the hull, made from outside exactly on the fungus spot, were seen in many varieties (Plate II, Fig. 2). The varieties in which at least one hole was seen on a spot of fungus apparently made by an outside weevil, are labelled Fd (fungi favored damage) in Table 2. The varieties 418, 1397, 1562 were seriously damaged because of fungi favoring the weevils attack while some varieties had many fungus patches but no hole made by the weevils through their husk were seen. These latter varieties are labelled in Table 2 Fnd (Fungi did not favor damage). As explained before in the section Materials and Methods, water was sprayed inside the cages 5, 6, 7, 8 and 9 of the free choice experiments. This favored fungus growth in these cages.

The majority of the varieties were little damaged and very few were seriously injured by the weevils. Variety 418 had more than 30% of kernels damaged in only one test. No variety with sound husks was seen to be damaged except when fungi favored the beetles. Varieties 3, 6, 7, 19, 21, 26, 31, 42, 146, 150, 154, 159, 176, 200, 215, 250, 261, 264, 285, 305, 347, 381,

EXPLANATION OF PLATE II

Fig. 1. The variety Lady Wright sel. 31 (var. 658), has many kernels with parted lemma and palea. This natural gap of the husk allows oviposition but more than 50% of the offspring remains imprisoned or trapped by the husk (center) and die without emerging from the kernels.

Fig. 2. In the variety Tainan No. 21 (var. 418) Sitophilus zeamais weevils bore holes through the husk for feeding and oviposition when there is fungus growth on it, and this picture shows two of these holes. The rough pitted area is the uninfected surface of the rice hull whereas the darker areas are covered by fungus.

PLATE II

Fig. 1

Fig. 2

383, 385, 387, 392, 402, 422, 424, 448, 458, 471, 474, 480, 511, 532, 538, 539, 540, 547, 559, 600, 664, 667, 668, 679, 682, 703, 710, 711, 735, 738, 758, 779, 784, 799, 814, 820, 836, 865, 871, 872, 881, 916, 964, 967, 986, 989, 1013, 1034, 1048, 1108, 1202, 1227, 1232, 1274, 1428, 1455, 1473, 1490, 1517, 1524, 1550, 1566, 1645, 1687, did not have any emergence of weevils and were little or not at all damaged by feeding. The following varieties were infested and it is likely that many of them could aggravate the losses in storage if cultivated and stored in an area where rice weevils are a problem in stored rough rice: 2, 5, 10, 17, 20, 29, 30, 38, 39, 48, 54, 56, 61, 79, 80, 88, 89, 97, 98, 119, 133, 148, 155, 164, 169, 170, 171, 174, 177, 183, 185, 193, 194, 196, 197, 204, 205, 207, 208, 209, 211, 212, 213, 220, 221, 223, 224, 228, 230, 233, 266, 274, 277, 301, 303, 304, 306, 321, 325, 352, 366, 380, 394, 397, 408, 409, 410, 418, 425, 450, 456, 462, 465, 467, 470, 472, 475, 476, 481, 489, 492, 493, 496, 499, 506, 512, 515, 516, 518, 519, 520, 521, 529, 530, 556, 568, 574, 576, 593, 603, 609, 616, 636, 637, 643, 647, 648, 656, 658, 661, 666, 671, 675, 677, 685, 686, 694, 700, 704, 707, 714, 723, 731, 732, 778, 818, 846, 853, 875, 884, 925, 928, 930, 931, 937, 945, 947, 952, 956, 958, 960, 962, 965, 970, 974, 981, 982, 987, 995, 999, 1002, 1004, 1014, 1022, 1031, 1038, 1043, 1050, 1051, 1056, 1057, 1060, 1061, 1068, 1076, 1078, 1082, 1093, 1102, 1115, 1133, 1138, 1144, 1175, 1178, 1185, 1209, 1217, 1221, 1235, 1237, 1240, 1241, 1246, 1247, 1248, 1250, 1252, 1256, 1263, 1265, 1268, 1269, 1272, 1282, 1290, 1303, 1305, 1307, 1308, 1318, 1326, 1328, 1329, 1335, 1339, 1344, 1354, 1355, 1356, 1365, 1366, 1367, 1368, 1379, 1383, 1385, 1392, 1395, 1397, 1399, 1400, 1403, 1409, 1411, 1415, 1416, 1420, 1421, 1423, 1426, 1434, 1437, 1439, 1452, 1453, 1460, 1468, 1470, 1474, 1475, 1493, 1494, 1498, 1500, 1505, 1511, 1516, 1518, 1522, 1526, 1536, 1539, 1540,

1545, 1547, 1549, 1551, 1553, 1554, 1555, 1556, 1559, 1560, 1561, 1562, 1563, 1565, 1567, 1568, 1569, 1571, 1573, 1578, 1581, 1583, 1584, 1586, 1590, 1592, 1593, 1596, 1597, 1598, 1604, 1609, 1610, 1614, 1618, 1621, 1627, 1628, 1630, 1631, 1634, 1635, 1636, 1647, 1649, 1657, 1663, 1670, 1672, 1674, 1680, 1683, 1688, 1697, 1698 and 1699. If harvested early (green kernels) the following varieties may aggravate the problem of rice weevil infestation in the stored rough rice: 297, 336, 337, 338, 340, 345, 351, 363, 390, 525, 1294. These varieties were tested only in this stage of maturation. Whether they would be more or less susceptible when matured is not known.

The check variety Bluebonnet did not have any emergence of weevils in cages 1 and 7 (Table 3). In cage 3 weevils emerged from all four samples of this variety. This suggests that the results obtained in these different cages are not comparable. However kernels of the variety Bluebonnet were damaged by feeding in all cages.

Weevils that emerged only partially from the kernels were counted as incompletely emerged. The weevils were able to bore through the hull of many varieties from inside to outside. They tried to get out of the kernels before the hole was large enough and got trapped, most commonly with the head pronotum and forelegs out and the remainder of the body inside (Plate II, Fig. 1; Plate III, Fig. 2).

Varieties 1098, 1134, 1166 and 1623 had some grains with open hull (so) but no weevils emerged. Varieties 1148, 1331, and 1401 had many kernels with open hull (o) but only one weevil emerged from 1401 and 1148 and none from 1331.

Table 3. Distribution of infesting adults, their feed damage and emergence of new adults of Sitophilus zeamais Motschulsky from the check-variety Bluebonnet in cages of free choice experiments with rough rice varieties.

Sample No.	Cage No.	No. of weevils in samples: 3 days after inf.	6 days after inf.	9 days after inf.	No. of kernels dmg. by adults	No. of weevils emerged: In-complete	Com-plete	Total
35a		12	3	7	7	0	0	0
99a	1	8	10	17	6	0	0	0
107a		1	3	4	9	0	0	0
161a		7	2	5	5	0	0	0
227a		4	1	13	5	0	1	1
292a	2	2	11	9	4	0	0	0
300a		2	7	7	4	0	2	2
351a		5	14	12	5	0	0	0
416a		2	8	11	5	1	3	4
484a	3	0	25	10	4	0	4	4
492a		1	13	3	7	0	7	7
543a		1	12	5	9	0	2	2
611a		1	7	16	7	0	1	1
675a	4	8	17	8	6	1	1	2
683a		2	4	17	6	0	0	0
734a		3	5	0	3	1	0	1
803a		14	20	12	1	0	0	0
853a	5	14	21	8	2	0	0	0
861a		9	43	6	3	0	0	0
925a		8	4	4	2	1	0	1
994a		14	15	20	1	0	0	0
1059a	6	30	10	11	6	0	0	0
1067a		11	9	25	4	0	1	1
1117a		23	15	23	3	0	0	0
1186a		32	25	17	7	0	0	0
1251a	7	23	13	22	2	0	0	0
1259a		10	24	22	7	0	0	0
1309a		21	13	2	4	0	0	0

Table 3 (concl.).

Sample No.	Cage No.	No. of weevils in samples: 3 days after inf.	6 days after inf.	9 days after inf.	No. of kernels dmg. by adults	No. of weevils emerged: In-complete	Com-plete	Total
1378a		13	13	1	4	0	1	1
1443a	8	11	7	17	6	0	0	0
1451a		2	1	5	2	1	0	1
1501a		8	23	7	7	0	0	0
1568a		6	16	13	2	0	0	0
1615a	9	26	26	5	3	0	0	0
1622a		15	15	19	2	0	0	0
1670a		14	23	14	7	0	1	1

EXPLANATION OF PLATE III

Fig. 1. Number of Rice weevils which emerged from three replications of the varieties: Tainan No. 21 (418); No. 20 Konko Taikei To (456); Tsi Shih Chin (677); PI 279156 (574); PI 282171 (568); CI 9344 (496); Bluebonnet; PI 283685 (557); PI 160774 (664); PI 16102 (389); and PI 160772 (667) under equal chances of infestation.

Fig. 2. Typical position of trapped and dead offspring of Sitophilus zeamais in a kernel of CI 9255, R 7689 x RN (var. 476). Theoretically the weevil could back in and enlarge the hole, but the forelegs which are already out prevent the weevil from returning into the kernel.

PLATE III

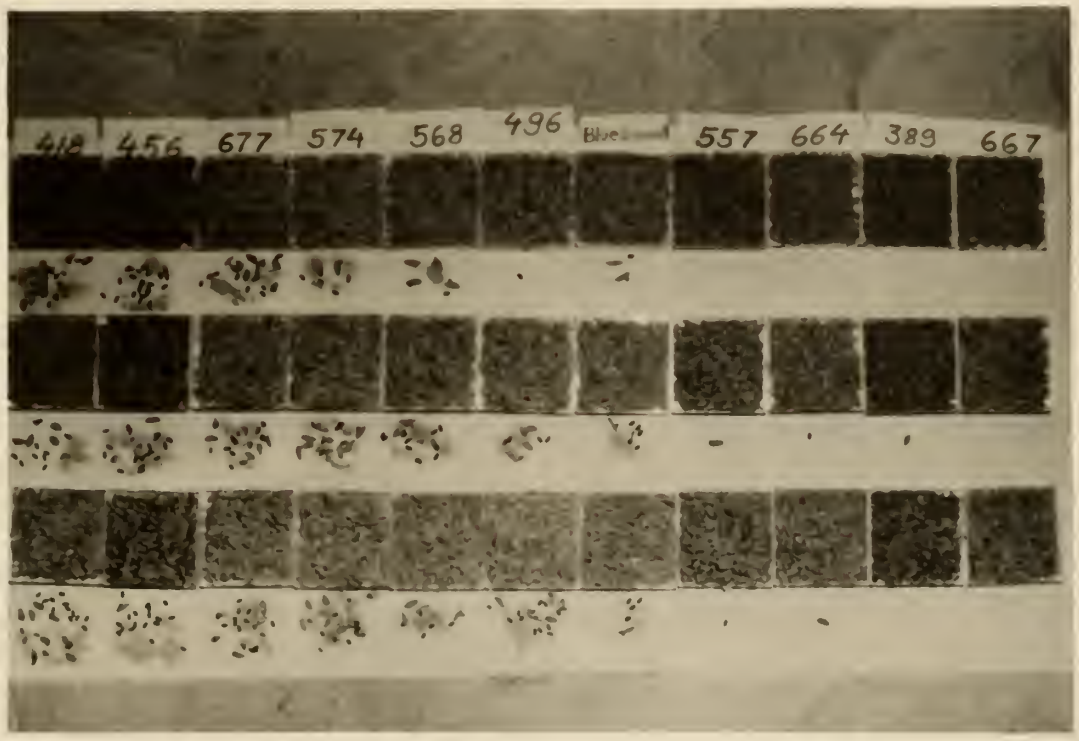

Fig. 1

Fig. 2

Experiment with Selected Varieties

The results with replicated test of selected varieties are presented in Tables 4 and 5. It is worth noticing that the kernels of the noninfested and of the commercial varieties included in this trial were not individually picked out for this experiment, but those of the very infested varieties were. The variety PI 160772 (var. 667) showed no feeding damage and no emergence. Varieties PI 282171 (var. 568), PI 279156 (var. 574), Tsi Shih Chin (var. 677), CI 9344 (var. 496), No. 20 Konko Taikei To (var. 456) and Tainan No. 21 (var. 418) were the most damaged. The variety Tainan No. 21 (var. 418) had 160 kernels undamaged and 50 kernels damaged (24%) and if the kernels with conspicuous defects had not been removed the damage would be greater. The commercial variety Batatais was resistant both in the free-choice and non-choice experiment. The non-choice experiment was made only with the four commercial varieties and the results are presented in Table 5.

Infestation and Country of Origin

In this study the two characters which contributed most to the infestation were broken hulls and lemma and palea separated (open hull). There were striking differences between varieties suggesting that these two characters are genetically influenced. Table 6 relates these two characters to the countries of origin of the varieties. Seven per cent of the varieties had many broken hulls (tf) and 8, 7% of the varieties had many kernels with open hull (so, o). The latter trait was rare in Chinese varieties (0.57%) and more common in American (19.1%), Korean (17.4%), Japanese (13.1%) and Taiwanese varieties (11.9%). Differences among countries were not as striking

Table 4. Feeding damage and emergence of adults from four commercial varieties of rough rice infested in separate cages with S. zeamais Motschulsky.

Var. Name	Country of Origin	Kernels Damaged by Adult Feeding	Weevils Emerged			Var. Feature
			Incomplete	Complete	Total	
Batatais	Brazil	5	0	0	0	
Bluebonnet	U.S.A.	5	0	2	2	
Ark Rose	U.S.A.	5	2	3	5	so[1]
Dourado Precoce	Brazil	10	0	1	1	so

[1]"Some open," means that some kernels had lemma and palea separated.

Table 5. Distribution of infesting adults in Duplos, number of kernels fed on by those adults and emergence of Sitophilus zeamais Mot. from three replications of twenty varieties of rough rice under equal chances of infestation.

Var. name, PI or CI no.	Rep. no.	No. infesting weevils per day											No. emerged				No. grains dam. by adult feed	Avg. no. grains dam. 3 repl.
		Jul. 23	Jul. 24	Jul. 25	Jul. 26	Jul. 27	Jul. 28	Jul. 29	Jul. 30	Jul. 31	Avg. no. per day	Avg. of 3 repl.	In-complete	Com-plete	Total	Avg. of 3 repl.		
Ark Rose	1	14	14	9	15	17	19	16	19	7	14.4		1	1	2		3	
	2	7	12	2	6	4	2	7	7	6	5.9	14.9	4	0	4	5.6	3	4.6
	3	17	27	30	24	22	28	36	17	20	24.5		1	10	11		8	
Dawdo Precoce	1	14	5	13	21	13	11	15	4	6	10.3		2	2	4		4	
	2	2	3	2	2	3	7	7	9	9	4.9	7.2	2	2	4	4.6	4	4.6
	3	7	4	4	4	7	4	11	7	10	6.4		2	4	6		6	
Blue Bonnet	1	12	1	12	11	16	8	18	15	17	12.2		2	1	3		5	
	2	4	4	4	8	3	17	7	8	12	7.4	8.7	2	4	6	4.6	4	4.3
	3	1	7	2	1	8	11	5	12	13	6.6		1	4	5		4	
Rotastar	1	11	3	7	10	9	9	8	8	4	7.6		0	1	1		3	
	2	7	9	2	2	6	4	2	2	2	4.0	6.0	0	1	1	1.0	1	1.6
	3	7	2	6	10	6	5	8	9	5	6.4		0	1	1		1	
CI 9010	1	5	4	8	7	11	6	9	2	3	6.1		1	0	1		1	
	2	7	4	8	14	11	6	9	5	1	7.2	6.9	3	1	4	2.3	2	2.3
	3	9	13	10	7	7	6	9	3	5	7.6		1	1	2		4	
PI 279156	1	21	22	31	26	38	36	25	29	33	29.0		4	5	9		15	
	2	23	25	23	24	22	29	35	16	14	23.4	24.7	8	4	12	12.6	11	12.6
	3	25	19	24	32	21	13	21	16	16	21.9		9	8	17		12	
PI 282171	1	17	8	19	23	24	16	16	12	14	16.5		1	5	6		3	
	2	12	13	11	16	10	10	5	4	6	9.6	13.6	5	9	14	9.0	5	5.3
	3	14	20	17	24	9	9	9	15	15	14.7		3	4	7		5	
PI 269 Selection	1	26	23	34	42	33	36	35	33	32	33.0		8	12	20		21	
	2	20	21	31	32	31	33	32	27	13	29.2	27.1	3	5	17	17.0	12	13.0
	3	15	18	27	29	18	11	23	21	13	19.3		9	11	20		13	

Table 5 (cont.).

Var. name, PI or CI no.	Rep. no.	No. infesting weevils per day											No. emerged				No. grain dmg. by adult feed	Avg. no. grain dmg. 3 repl.
		Jul. 23	Jul. 24	Jul. 25	Jul. 26	Jul. 27	Jul. 28	Jul. 29	Jul. 30	Jul. 31	Avg. no. per day	Avg. of 3 repl.	In-complete	Com-plete	Total	Avg. of 3 repl.		
	1	4	1	6	1	11	6	2	2	2	3.9		1	0	1		1	
Chipda No. 1	2	6	6	5	3	6	2	3	3	2	4.0	4.1	0	1	1	1.0	1	1.0
	3	5	2	9	3	8	3	5	5	1	4.5		0	1	1		1	
	1	5	4	5	1	6	2	3	7	4	4.1		0	0	0		4	
PI 283685	2	6	1	1	2	2	0	2	0	2	1.8	5.0	1	0	1	0.6	0	2.3
	3	5	3	10	6	3	6	6	5	8	9.3		0	1	1		3	
	1	1	1	0	2	0	1	5	1	1	1.3		0	0	0		0	
PI 16102	2	1	2	0	2	0	0	1	1	0	0.8	1.4	1	0	1	0.3	2	1.0
	3	1	4	3	5	2	0	2	2	1	2.2		0	0	0		1	
	1	12	4	5	10	4	4	5	6	3	5.9		0	1	1		1	
Brain Sel. × BR	2	15	15	7	8	18	12	15	8	7	11.6	10.2	2	2	4	4.0	7	5.3
	3	6	11	10	19	15	9	15	11	14	13.3		2	5	7		8	
	1	4	0	6	4	8	10	8	2	4	5.1		0	0	0		0	
PI 160641	2	3	4	9	6	4	1	2	3	1	3.9	5.0	0	0	0	1.0	3	2.3
	3	8	3	5	11	6	5	6	6	5	6.1		3	0	3		4	
	1	3	0	0	3	4	5	7	3	11	3.8		0	1	1		3	
Palman No. 21	2	2	3	0	0	2	4	7	3	3	2.6	3.5	1	0	1	1.3	3	4.0
	3	3	4	4	2	2	7	4	1	6	4.2		0	2	2		6	
	1	0	1	2	0	5	2	5	4	1	2.2		0	0	0		1	
PI 160772	2	0	0	2	0	1	4	0	1	1	1.0	1.9	0	0	0	0.0	2	1.0
	3	4	2	2	1	4	3	3	3	2	2.6		0	0	0		0	
	1	1	0	3	4	2	0	4	6	2	2.4		0	0	0		1	
PI 160774	2	2	2	1	1	0	1	2	0	1	1.1	1.9	0	1	1	0.6	3	1.3
	3	4	2	4	0	3	3	4	1	1	2.4		1	0	1		0	

Table 3 (concl.).

Var. name, PI or CI no.	Rep. no.	No. infesting cowvils per day											No. emerged				No. grain days by adult feed	Avg. no. grain days 3 repl.
		Jul. 23	Jul. 24	Jul. 25	Jul. 26	Jul. 27	Jul. 28	Jul. 29	Jul. 30	Jul. 31	Avg. no. per day	Avg. of 3 repl.	In-complete	Complete	Total	Avg. of 3 repl.		
CI 9923	1	3	7	6	10	5	5	4	4	6	6.1		0	1	1		3	
	2	4	3	2	3	0	4	3	2	3	2.6	5.2	1	1	2	1.0	3	2.6
	3	8	9	7	6	6	7	6	8	6	7.0		0	0	0		2	
CI 9344	1	24	15	17	20	6	11	11	8	10	13.5		0	1	1		4	
	2	23	9	10	9	6	10	7	6	3	9.2	14.5	3	4	7	7.6	6	9.6
	3	21	15	19	25	30	19	23	15	18	21.0		4	11	15		19	
No. 60	1	13	21	26	29	18	23	19	17	28	21.5		0	20	20		10	
Kooka	2	21	19	25	11	15	18	19	13	16	17.4	20.5	0	25	25	21.0	18	14.0
Talbot To	3	31	30	32	21	18	20	12	19	22	22.8		0	18	18		11	
Talman No. 21	1	28	22	44	47	32	43	60	46	45	40.8		8	15	23		22	
	2	11	13	24	20	17	10	12	8	18	14.6	27.9	2	14	16	21.6	10	17.3
	3	26	34	13	38	24	25	34	31	32	28.5		6	20	26		20	

for the trait broken hulls.

The average number of weevils emerged in the free-choice and non-choice experiments (Table 2) were studied in a comparison involving eight countries, China, India, Italy, Japan, Korea, Philippines, Taiwan and the United States and the results are given in Plate IV. No weevils emerged from 52% of the varieties from India but only 18.6% of the varieties from Taiwan had no emergence.

DISCUSSION

Most of the varieties were not much damaged by the weevils in this experiment and very few were severely damaged. Breese (1960) concluded that S. oryzae was not able to breed on mature sound kernels of three varieties of rough rice even at higher moisture content. At 75% r.h. no hole was seen that had been made by an outside weevil through a sound husk of any of the 1,700 varieties of rough rice studied. However, fungus growth on the hulls of many varieties allowed the weevils to bore through the hull exactly on fungus spots (Plate II, Fig. 2). Some varieties such as Tainan No. 21 (var. 418), Mubo Aikoku (var. 1397) and Kiuki No. 46 (var. 1562) could be severely damaged by the weevils when infected with fungus growth. In other varieties no hole was made by the weevils through the hull despite the presence of fungi. The fungus may have enabled the weevils to bore through the husk for two reasons: (1) The fungus softened the husk, (2) provided a feeding arrestant or stimulant directly or indirectly by biochemical changes of the husk. The second reason may have played a more important role than suspected. Apparently the outside weevils could bore through the husk if they kept trying. They generally tried to bore into the husk but moved on after a

Table 6. Number of varieties from each country of origin, percentage with palea and lemma separated (so, o) and percentage with broken hulls (tf).

Country of origin	No. of var. studied	% of var. per country	No. of var. with so or o			% of var. with o or so	No. of var. with tf**	% of var. with tf
			so**	o**	Total			
Afghanistan	6	--*	0	0	0	--	2	--
Argentina	5	--	0	0	0	--	0	--
Australia	5	--	0	0	0	--	1	--
Belgian Congo	2	--	0	0	0	--	0	--
Bolivia	1	--	0	0	0	--	0	--
Brazil	3	--	1	0	1	--	0	--
British Guiana	2	--	0	0	0	--	0	--
British W. Indies	1	--	0	0	0	--	0	--
Ceylon	3	--	0	0	0	--	0	--
China	350	20, 5	2	0	2	0, 57	26	7, 4
Chile	1	--	0	0	0	--	0	--
Cuba	2	--	0	0	0	--	0	--
Ecuador	1	--	0	0	0	--	0	--
Egypt	2	--	0	0	0	--	0	--
France	7	--	1	0	1	--	0	--
Guatemala	2	--	0	0	0	--	0	--
Haiti	2	--	0	0	0	--	0	--
Hungary	17	--	0	0	0	--	0	--
India	72	4, 2	3	0	3	4, 1	4	5, 5
Indonesia	11	--	0	1	1	--	1	--
Iran	2	--	0	0	0	--	1	--
Italy	63	3, 7	2	0	2	3, 1	0	0
Nigeria	3	--	0	0	0		0	
Japan	412	24, 2	22	32	54	13, 1	25	6, 0
Korea	189	11, 1	15	18	33	17, 4	10	5, 2
Peru	1	--	0	0	0	--	0	--
Philippines	59	3, 4	2	0	2	3, 3	8	13, 5
Portugal	1	--	0	0	0	--	0	--

Table 6 (concl.).

Table 6 (concl.).

Country of origin	No. of var. studied	% of var. per country	No. of var. with so or o			% of var. with o or so	No. of var. with tf**	% of var. with tf
			so**	o**	Total			
Spain	1	--	0	0	0	--	0	--
Soviet Union	3	--	0	0	0	--	0	--
Taiwan	42	2, 4	4	1	5	11, 9	7	16, 6
Thailand	1	--	0	0	0	--	0	--
U.S.A.	94	5.5	12	6	18	19, 1	12	12, 7
Vietnam	1	--	0	0	0	--	0	--
Yugoslavia	1	--	0	0	0	--	0	--
Unknown	332	19, 5	22	4	26		23	
Total	1700		86	62	148	8, 7	120	7, 0

*The dashes in this column are 1% or less. These samples were not considered to be large enough to be representative of their countries.

**Not all the kernels of these varieties had these characters and so means that the character was less common than o.

EXPLANATION OF PLATE IV

Fig. 1. The distribution frequency of rough rice varieties per numbers and groups of numbers of rice weevils emerged, for 413 varieties from Japan and 73 from India.

Fig. 2. Do, for 341 varieties from China and 161 from Korea.

Fig. 3. Do, for 63 varieties from Italy and 43 from Taiwan.

Fig. 4. Do, for 94 varieties from the United States and 59 from the Philippines.

PLATE IV

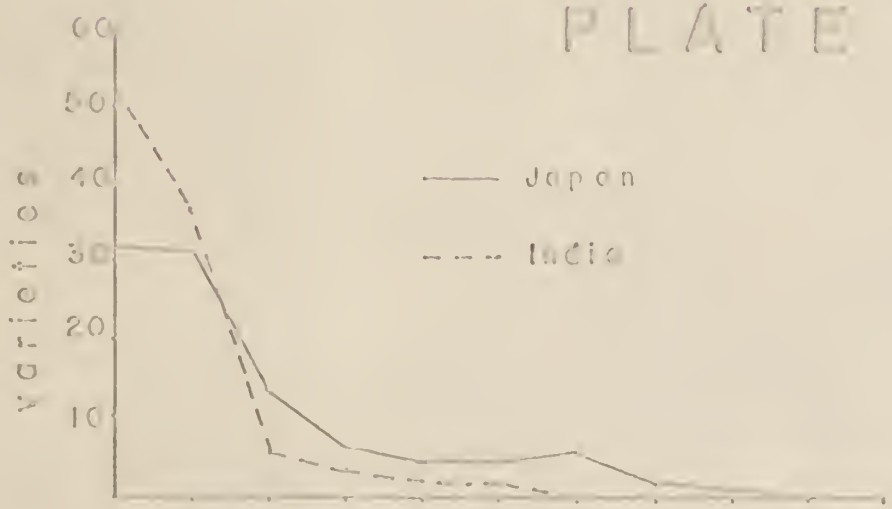

Fig. 1

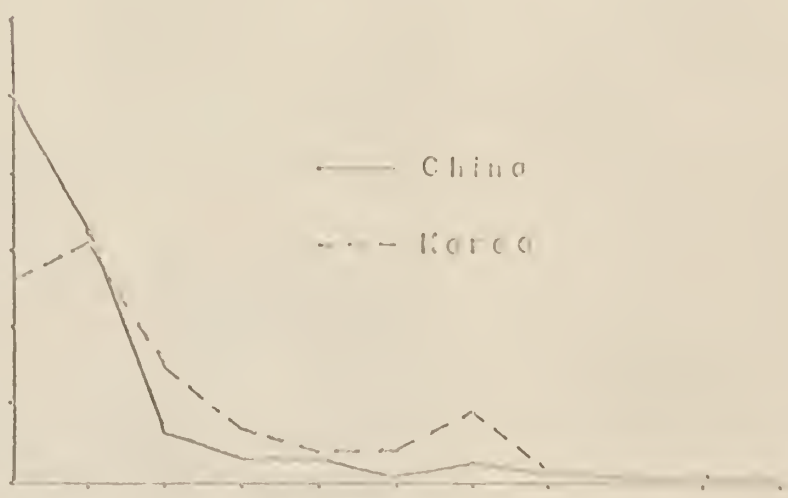

Fig. 2

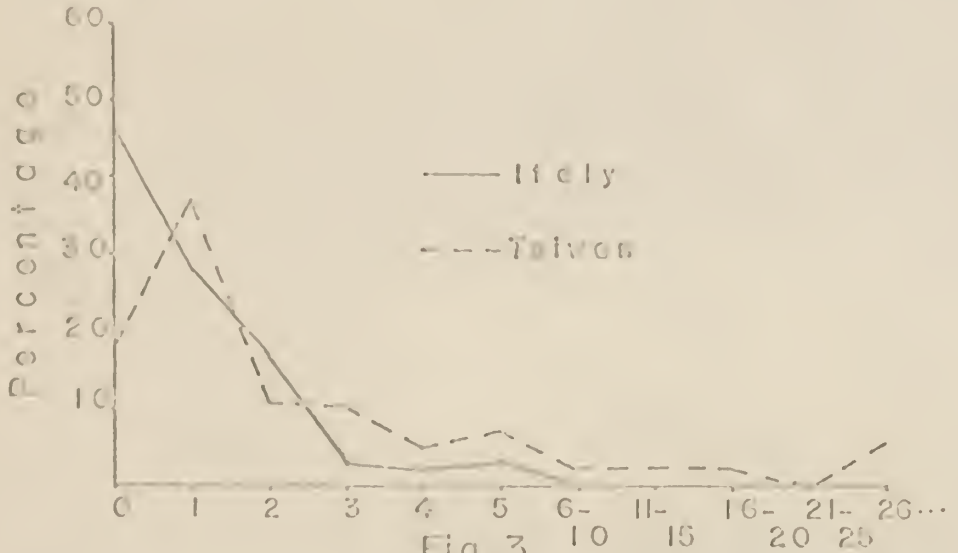

Fig. 3

No. of adults emerged

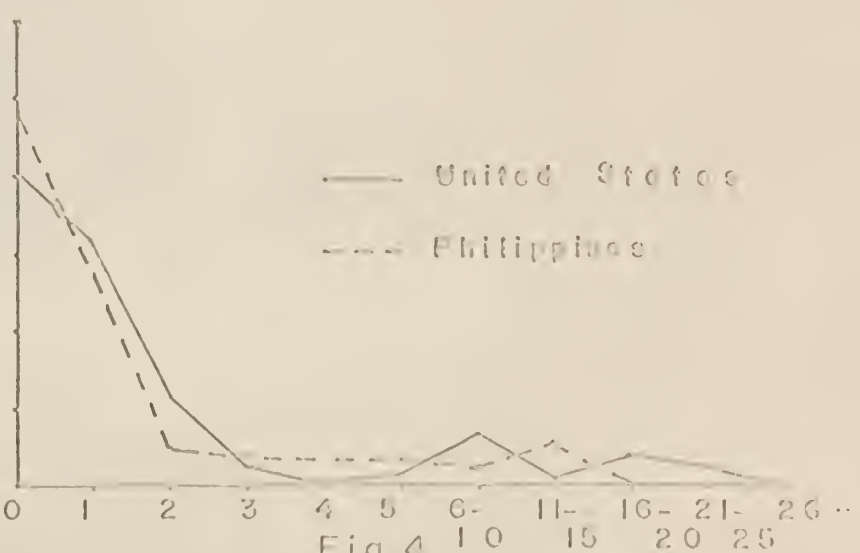

Fig. 4

of

157

few seconds. When emerging they cut an exit hole through the husk of some varieties. When inside the kernel the weevil is provided with leverage against the other kernel wall which may aid in emergence. Breese (1960) suggested that the siliceous epidermis and the hard hairs which may be present on the outer surface probably protect the kernels from external attack. Apparently the small stiff hairs that cover the husk of many rice varieties may offer some protection against the beetles. Variety Palman No. 21 (74 in the experiment) had such hairs and although some of its kernels had palea and lemma separated at the tip little or no damage was done by the weevils. This variety has thin and small kernels that may also have accounted for the little damage that occurred. The weevils did not bore through the husk of any variety with glabrous kernels; therefore the hairs are not essential for resistance. Smooth hull is a desirable trait in rice (Jodon, cited by Chang, 1964) and the breeding in of stiff hairs to increase the resistance to weevils is unnecessary and undesirable in rough rice.

Only kernels with fungus or husk defects were damaged. The most common defects were open hulls and broken hulls. Breese (1960, 1965) considered two different types of separation between palea and lemma (1) separated at one side only, (2) failure to close properly after blooming leaving tip exposed. In this study such distinctions were not made and both were considered open hull (o, so), because in many varieties it was difficult always to distinguish between these classes (Plate I, Fig. 1). The character open hull (parted lemma and palea) is an undesirable character because it renders the kernel of rough rice subject to infestation by Sitophilus zeamais Motschulsky and also by S. oryzae (L.) and Rhyzopertha dominica (F.) (Breese, 1960); it is very likely that it would favor infestation by Sitotroga cerealella (Oliv.)

since the first instar larvae of this insect has a strong preference for crevices. The character open hull is determined by a single recessive gene (Anonymous, p. 9, 1963) and has been given the symbols hpt, op, o (Chang, p. 62, 1964). Hulled kernels may be very susceptible to Sitophilus spp. while unhulled kernels with a sound husk are resistant, although they may be susceptible if infected by fungus, and in many varieties they are essentially immune to rice weevil attack. Selection for kernels that do not lose the hull easily when combined, threshed, or when spread for drying is desirable for resistance to rice weevils. Tough dehulling is symbolized Tf and is reported to be a single dominant trait over ease of dehulling (Anonymous, p. 9, 1963).

Immature kernels (green) may favor infestation (Breese, 1960). But many varieties with green kernels were not damaged at all.

It is worth noting that no variety was 100% damaged and there were always kernels with sound husks in all varieties. It may be worthwhile to make mass selection for soundness of husk in rough rice. As open hull and easy dehulling are recessive traits a head to row selection may be more effective than a simple mass selection.

Juliano (1964) reported that mold growth in rough rice increases at humidities higher than 75% r.h. when at temperatures between 60° and 100°F. As fungus favored the weevil attack in many varieties and did not favor it in others, the study of the resistance of rough rice varieties to Sitophilus spp. at humidities above 75% should be interesting.

Red rice is the most serious weed pest of rice and as Sonnier (1964) wrote "Other economical methods of controlling red rice are needed." Douglas (1941) noticed insects emerging from red rice but did not mention which

species. If resistance of rough rice to Sitophilus spp., Rhyzopertha dominica (F.) and Sitotroga cerealella (Oliv.) is bred into the cultivated varieties and if red rice proves to be susceptible to one or more of these pests, this could be a biological way of reducing the red rice population in rice fields. This would be another advantage for breeding resistant varieties of rough rice to insects.

Breese (1960) noticed that about 50% of the Sitophilus oryzae (L.) adults were unable to emerge from the rice kernels in which they developed. In varieties having open hulls on only one side more weevils were trapped in emerging than in varieties with broken hulls. This makes broken hulls a worse character than open hulls.

Due to the physical barrier offered by the husk and due to the noticeable variation of the husks among varieties it is apparent that breeding resistant varieties should prove to be a very satisfactory way of insect control in field and stored rough rice.

SUMMARY AND CONCLUSIONS

In this study 1,700 varieties of rough rice representing 35 different countries were experimentally infested by Sitophilus zeamais Motschulsky in two ways (1) with choice, that is the weevils could move from variety to variety and (2) confined with a single variety.

At 75% r.h. and 87°F about 20% of the varieties could be more or less infested; the remainder (about 80%) were either little or not damaged at all.

Varieties with sound husks were not damaged and the weevils did not bore through the husk of any of the 1,700 varieties when they were free from fungus spots. When there were fungus spots on the husk the weevils either

bored or did not, depending on the variety.

The most common causes of higher infestation were broken hulls and parted palea and lemma. The former was present with more or less frequency in 7% of the varieties and it was a worse defect than the latter. Some varieties with broken hulls could suffer 50% damage while varieties with a sound husk in the same test nearby had no damage.

The highest percentages of varieties typically opening on only one side (so or o) were from Korea (17.4%) and Japan (13.1%). American varieties also had a high percentage (19.1%) of open hulls but generally the character was present in fewer kernels (so) or were not so typically opened on only one side as were the Japanese and Korean. Varieties from China had a very low percentage (0.57%) with open hull. The conclusions of this study agree with those of Breese (1960), that sound rough rice kernels with well developed husks noninfected by fungus are not infested by Sitophilus spp.

ACKNOWLEDGMENTS

Sincere gratitude is expressed to Dr. Reginald H. Painter, who as major professor, both before and during these studies, aided my coming to Kansas State University, and directed my research here. Gratitude is also expressed to other members of the Department of Entomology, especially Professor Donald Wilbur and Dr. Robert Mills for their guidance and for the use of their laboratory facilities; and Dr. Herbert Knutson for his support and encouragement.

Thanks are also given to Dr. Lloyd O. Warren, Department of Entomology and Prof. Vernon L. Hall, Department of Agronomy, both of the University of Arkansas, for varieties of rice sent; to Dr. C. Roy Adair, U.S.D.A., Agriculture Research Service, Crop Research Division, Beltsville, Maryland, for helping to obtain the rice varieties; to Eng. Agr. Emilio Bruno Germeck, Department of Plant Introduction, Instituto Agronomico, Campinas for varieties of rice sent, to Dr. Nelson E. Jodon, U.S.D.A., Rice Experimental Station, Crowley, Louisiana, for furnishing varieties of rice and technical information; to Dr. Charles N. Bollich, Beaumont, Texas, and Dr. T. H. Johnston, Stuttgart, Arkansas, both of the U.S.D.A., Crop Research Division, for sending 920 and 764 samples of rice varieties respectively.

The author is also indebted to his colleagues Gonzalo Granados Reynaud, Terry Biery and Gabriel Diaz for their assistance and Hayward Spangler for taking some of the pictures of rice seeds; and also to Miss Sue Brandner and Miss Carol Hoover for their assistance.

This research was made possible by the Agency of International Development (A.I.D.) through a fellowship granted to this writer. The grant of

international transportation by the Coordenacao do Aperfeicoamento de Pessoal de Nivel Superior (CAPES) and Conselho Nacional de Pesquisas (CNPq) of Brazil is acknowledged.

LITERATURE CITED

Anonymous. Insect pests of stored rice. U. S. Dept. Agric. Agr. Handb. 129. 30 p. 1957.

_____. Insect prevention and control in rough rice. U. S. Dept. Agric. Market. Bull. 28. 7 p. 1963.

_____. Rice gene symbolization and linkage groups. U. S. Dept. Agric. Agr. Res. Serv. 34-28. 56 p. 1963.

Balzer, August I. Insect pests of stored rice and their control. U. S. Dept. Agric. Farmers' Bull. 1906. 22 p. 1942.

Breese, Michael H. The infestibility of stored paddy by Sitophilus sasakii (Tak.) and Rhyzopertha dominica (F.). Bul. Ent. Res. 51(3):599-630. 1960.

_____. Combine harvesting rice in the tropics. Progress or problems? World Corps. 13(10):376-379. 1961.

_____. The infestibility of paddy and rice. Trop. Stor. Prod. Inform., Slough, England. 8:289-299. 1964.

_____. The influence of husk defects on the infestibility of stored paddy by Rhyzopertha dominica (Fab.) (Col. Bostrichidae) and Sitophilus oryzae (L.) (Col. Curculionidae). XII Int. Cong. Ent., Proc. 1965: 631-632.

Chang, Te-Tzu. Present knowledge of rice genetics and cytogenetics. Int. Rice Res. Inst. Tech. Bul. 1. 96 p. 1964.

Cotton, R. T. Rice weevil (Calandra) Sitophilus oryza. J. Agr. Res. 20(6): 409-422. 1920.

Crist, Raymond E. Rice-basic food for one-third of the earth's people. 1960 Smithsonian Inst. Rep. 1961:509-521.

Douglas, W. A. Field infestation by insects that injure rice in storage. U. S. Dept. Agric. Circ. 602. 8 p. 1941.

Ewer, R. F. The effect of the grain size on the oviposition of Calandra oryzae L. Roy. Ent. Soc. Lond., Proc. 20:57-63. 1945.

Fernando, H. E. Damage to grain in storage by the grain moth Sitotroga cerealella and new treatments for its control. Paper presented at a meeting of the working party on rice production and protection (FAO). Peradenya, Ceylon. 1959. (Not seen).

Floyd, E. H., and L. D. Newsom. Biological study of the rice weevil complex. Ent. Soc. Am., Ann. 52(6):687-695. 1959.

Freeman, J. A. On the infestation of rice and rice products imported into Britain. XII Int. Cong. Ent., Proc. 1965:632-634.

Gundurao, H. R., and S. K. Majumder. Inter-granular space as a limiting factor for the growth of pulse beetles. J. Econ. Ent. 57(6):1013-1014. 1964.

Hinckley, Alden D. Insect pests of rice in Fiji. F.A.O. Plant Protect. Bull. 11(2):31-33. 1963.

Hinds, W. E., and W. F. Turner. Life history of the rice weevil Calandra oryza L., in Alabama. J. Econ. Ent. 4(2):230-236. 1911.

Howe, R. W. The biology of the rice weevil, Calandra oryzae (L.). Ann. Appl. Biol. 39(2):168-180. 1952.

Kinoshita, S., and H. Ishikura. Sizes of Calandra oryzae L. and environmental conditions. Oyo-Dobuts. Zasshi. 12(3-4):124-128. 1940. (In Jap.) (Abstr. in Rev. Appl. Ent. Ser. A. 29:172. 1941.)

Kiritani, K. Insect infestation of stored rice in Japan. XII Int. Cong. Ent., Proc. 1965:630-631.

Juliano, O. Bienvenido. Hygroscopic equilibria of rough rice. Cereal Chem. 41(3):191-197. 1964.

Morrison, E. O. A survey on the distribution of the rice weevil complex, Sitophilus spp., infesting stored grain in Texas and a check-list of other stored grain insect pests encountered. Tex. J. Sci. 16(1):90-95. 1964a.

_____. The effect of particle size of sorghum grain on development of the weevil Sitophilus zeamais. J. Econ. Ent. 57(3):390-391. 1964b.

_____. Taxonomy of the rice weevils, Sitophilus oryzae (L.) and S. zea-mais Motschulsky and an annotated bibliography relevant to the ecology of the species. Tex. J. Sci. 16(2):243-253. 1964c.

Nishigaki, Jojiro. The effects of water content of rice and the temperature on the development and reproductive rate of the geographical strains of the two rice weevils, Calandra oryzae L. and C. sasakii Takahashi. Jap. J. Appl. Ent. Zool. 2(4):264-270. 1958.

Peterson, M. L. Rice and research. In Rice. Calif. Agr. 17(8):2-11. 1963.

Reddy, D. Bap. Ecological studies of the rice weevil. J. Econ. Ent. 43(2): 203-206. 1950a.

_____. Influence of sound kernels compared with halved kernels of wheat upon oviposition of the rice weevil. J. Econ. Ent. 43(3):390-391. 1950b.

Reddy, D. Bap, and A. E. Michelbacher. Nature of food and its influence on rice weevil. J. Econ. Ent. 46(6):1098. 1953c.

Richards, O. W. The two strains of the rice weevil Calandra oryzae (L.). Roy. Ent. Soc. Lond., Trans. 94:187-200. 1944.

Roa, D. S. The breeding of Sitophilus oryzae in rice. Indian J. Ent. 15(2):157-159. 1953. (Not seen).

Rouse, Phil, L. H. Rolston, and Charles Lincoln. Insects in farm-stored rice. Ark. Agr. Exp. Sta. Bull. 600. 25 p. 1958.

Russell, Mercer P. Effects of sorghum varieties on the lesser rice weevil, Sitophilus oryzae (L.). I. Oviposition, immature mortality and size of adults. Ent. Soc. Am., Ann. 55(6):678-685. 1962.

Soderstrom, E. L. Resistant grain varieties in relation to stored grain. Ent. Soc. Amer. No. Cent. Br., Proc. 17:68-71. 1962a.

_____. Variations of two geographical populations of lesser rice weevils Sitophilus sasakii (Tak.) and one geographical population of rice weevil Sitophilus oryzae (L.). Ph. D. Diss., Kansas State Univ. 70 p. 1962b.

Soderstrom, E. L., and Donald A. Wilbur. Variations in size and weight of three geographical populations of the rice weevil complex. Kans. Ent. Soc., J. 38(1):1-9. 1965.

Sonnier, Earl A. Red rice studies. 56th Ann. Rep. Progr. Rice Expt. Sta., Crowley, Louisiana. 56:165-180. 1964.

Stermer, Raymond A. Spectral response of certain stored product insects to electromagnetic radiation. J. Econ. Ent. 52(5):888-892. 1959.

Stracener, Charles L. Insects of stored rice in Louisiana and their control. J. Econ. Ent. 27(4):767-771. 1934.

_____. Some phases of insect control in rough rice. Louisiana State Univ. Insect Pest Control. Serv. Leafl. 2. 4 p. 1937.

Tucker, Elbert S. Initial advances in research work with insects infesting stored rice. Kans. Acad. Sci., Trans. 29:75-84. 1920.

RESISTANCE OF VARIETIES OF ROUGH RICE (PADDY) TO THE SITOPHILUS ZEAMAIS MOTSCHULSKY (COLEOPTERA-CUCURLIONIDAE)

by

CARLOS JORGE ROSSETTO

Eng. Agr., Escola Superior de Agricultura "Luiz de Queiroz," 1961

AN ABSTRACT OF A MASTER'S THESIS

submitted in partial fulfillment of the

requirements for the degree

MASTER OF SCIENCE

Department of Entomology

KANSAS STATE UNIVERSITY
Manhattan, Kansas

1966

The purpose of this study was to seek varieties of rough rice resistant to Sitophilus zeamais Motschulsky in storage. Varieties of rough rice totaling 1,700 from 35 countries were all received from the U. S. Department of Agriculture excepted three from Brazil. Six-gram samples of each variety were infested with Sitophilus zeamais Motschulsky twice; at first with free-choice for the weevils to infest any variety and later with no choice permitted. The number of kernels fed on by the infesting adults and the emergence of weevils were used to judge varietal differences. About 80% of the varieties were resistant in these tests and the remainder were more or less damaged. A few varieties such as Tsi Shih Chin, Tainan No. 21 and No. 20 Konko Taikei To were severely damaged. The most damaged varieties were varieties with broken hulls (tf). Kernels with defects were left in the samples but hulled kernels (brown rice) were removed before infestation, otherwise the damage would have been greater. This character of easy breakage was present with more or less frequency in 7% of the varieties and did not differ much in country of origin.

Another character which allowed severe infestation of many varieties was lemma and palea parted. It was present with more (o) or less (so) frequency in 8.7% of the varieties and varied more than broken hulls in the country of origin. It was more common in American (19.1%), Korean (17.4%) and Japanese (13.1%) varieties and very rare in Chinese varieties (0.57%). Varieties with green kernels (immature) were either damaged or not damaged at all. Weevils outside the kernels were not seen to bore into the sound husk of any variety under the conditions of the experiment (75% relative humidity and 87°F.). In some varieties there was fungus growth which either did not favor or favored the outside weevils in boring through the husk. Some varieties like Tainan 21

and Kiuki 46 were seriously damaged because of fungus growth favoring the weevil attack. Lemma and palea parted, genetic character "o" and easy dehulling, genetic character "tf" are single traits inherited as recessives and should be selected against in rice breeding if resistance to weevils is wanted. Many times the crack or opening of the husk was not large enough for the adult offspring to emerge from the kernel. An exit hole was cut in many varieties but in almost all varieties part of the offspring remained trapped completely or partially inside the kernels.